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NATIONAL SECURITY IMPLICATIONS OF NUCLEAR TESTING AGREEMENTS

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

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NATIONAL SECURITY IMPLICATIONS OF NUCLEAR TESTING AGREEMENTS

MONDAY, SEPTEMBER 17, 1990

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 2:10 p.m. in room SR-222, Russell Senate Office Building, Senator Sam Nunn (chairman) presiding.

Committee members present: Senators Nunn, Gore, Wirth, Warner, Gorton and Lott.

Committee staff members present: Arnold L. Punaro, staff director; Andrew S. Effron, general counsel; Madelyn R. Creedon, counsel; Lucia M. Chavez, research assistant.

Professional staff members present: Robert G. Bell, Douglas George, John J. Hamre and William E. Hoehn, Jr.

Minority staff members present: Patrick A. Tucker, minority staff director and counsel; Romie L. Brownlee, deputy staff director for the minority; Brian D. Dailey, John E. Mansfield, Durwood W. Ringo, Jr., and Ann Elise Sauer, professional staff members.

Staff assistant present: Debra A. Rice.

Committee members' assistants present: Andrew W. Johnson, assistant to Senator Exon; Kenneth N. Luongo, assistant to Senator Levin; Christopher E. Paine, assistant to Senator Kennedy; John Gerhart, assistant to Senator Bingaman; Donald A. Mitchell, assistant to Senator Glenn; Leon S. Fuerth, assistant to Senator Gore; Jefferson B. Seabright, assistant to Senator Wirth; Terence M. Lynch, assistant to Senator Shelby; Melvin G. Dubee, assistant to Senator Byrd; James M. Bodner, assistant to Senator Cohen; Anthony H. Cordesman, assistant to Senator McCain; Thomas G. Moore, assistant to Senator Wallop; Robert M. Soofer, assistant to Senator Gorton; Charles G. Pearcy, assistant to Senator Lott; and Eric H. Thoemmes, assistant to Senator Coats.

OPENING STATEMENT OF SENATOR SAM NUNN, CHAIRMAN

Chairman NUNN. The committee will come to order.

The committee meets this afternoon to receive testimony from executive branch witnesses on the national security implications of two pending treaties on nuclear testing—the 1974 Threshold Test Ban Treaty, known as TTBT, and the 1976 Peaceful Nuclear Explosions Treaty, known as PNET—and the new verification protocols that accompany these older treaties which were signed by President Bush and President Gorbachev on June 1, the treaties having

been entered into way back in the 1970's but were held up for a long time in terms of formal approval because of verification concerns.

We will hear from two panels this afternoon. Panel 1 will consist of Ambassador Ron Lehman, Director of the Arms Control and Disarmament Agency, and Ambassador C. Paul Robinson, who has served as the chief U.S. negotiator and head of the delegation at the U.S.-Soviet nuclear testing talks.

Ambassadors Lehman and Robinson will summarize the treaties and present the administration's position on related issues such as the safeguards recommended by the Joint Chiefs of Staff, and also, most importantly, where we go next with further arms control negotiations on nuclear testing.

Both of these issues are of particular interest to me and to this committee, and both have been addressed in conditions the Foreign Relations Committee has incorporated in its resolution of ratification on the TTBT. In his June 28 letter of transmittal to the Senate, President Bush included a clear, strong commitment to a set of unilateral U.S. safeguards for these two treaties, stating that these safeguards are essential to our national security and the maintenance of a credible nuclear deterrent.

With regard to the second issue, the next steps in the nuclear testing talks, I am sure Ambassador Lehman will recall my efforts and those of others on this committee to work out a satisfactory and realistic compromise on the nuclear testing issue on the eve of the Reykjavik summit back in 1986. It has been 4 years, I guess. It does not seem that long ago.

Panel 2 will be comprised of representatives of the Office of the Secretary of Defense, the Joint Chiefs, and the Department of Energy, who will testify as to their agencies' position on the treaties and address broader issues, including the continued need for nuclear testing.

The witnesses on this panel will be Mr. Robert Barker, Assistant to the Secretary of Defense for Atomic Energy, Mr. Victor Alessi, Director of the Office of Arms Control in the Department of Energy, and Rear Adm. Thomas Fox, Deputy Director for the International Negotiations on the Joint Chiefs of Staff.

President Bush submitted these two treaties and their accompanying protocols for the Senate's advice and consent on June 28 of this year. In July and August, both the Foreign Relations Committee and the Intelligence Committee held several hearings on the treaties, and we have been kept fully informed of their deliberations.

Due to our committee's concentration on the defense authorization bill and the Persian Gulf crisis in July and August, we were unable to schedule a hearing on these treaties until today. On Friday, the Senate Foreign Relations Committee approved each treaty by a vote of 18 to zero, and floor action is scheduled at an early date.

The Senate Foreign Relations Committee resolution of ratification for the TTBT, copies of which have been distributed, recommends ratification subject to two conditions: (1) Endorsement of the JCS safeguards; (2) a nonbinding declaration that the United States and the Soviet Union share a special responsibility to continue ne-

gotiations towards further limitations on nuclear testing, including a verifiable comprehensive test ban, known as CTB.

I will listen to the witnesses' testimony and consult with others in the Senate before making final judgments on this matter, and I will certainly want to talk to my colleagues again on the Intelligence Committee. I serve on that committee, and that committee has gotten out a rather comprehensive report, too. Senator Boren and Senator Cohen have testified before the Senate Foreign Relations Committee.

As with other matters concerning arms control, there really are multiple committees involved, including our committee, and the prime committee, of course, is the Foreign Relations Committee that handles the treaties themselves, and also, most importantly, the Intelligence Committee.

So we are delighted to have, both, Ambassador Lehman, and Ambassador Robinson this afternoon.

I believe Senator Warner is on his way, and probably will have some comments when he comes. Senator Lott, do you have any opening comments?

Senator LOTT. Just very briefly, if I might, Mr. Chairman.

First, I would like to welcome Ambassadors Lehman and Robinson for being here, and also Mr. Barker and Admiral Fox from the Department of Defense who will be here later.

There is obviously no more important part of our national security establishment than our nuclear deterrent. It is the foundation of our capability to defend our homeland, and many of our vital interests around the globe. Nuclear testing is important is important in ensuring the viability of our nuclear deterrent, and ensuring the safety of the devices in our stockpile and confidence in those stockpiles is of utmost importance.

It seems to me that a lot of the previous serious defects we had, a lot of the problems of verification, have been overcome. I think that obviously you gentlemen have been doing an outstanding job. I am anxious to hear more about where you think we are right now, and more about the details involved, and we are just glad to have you here and want to welcome you, and look forward to asking some questions at the appropriate time. I have a written statement that I would like inserted in the record.

Thank you, Mr. Chairman.

[The statement referred to follows:]

PREPARED STATEMENT OF SENATOR TRENT LOTT

Thank you Mr. Chairman:

I want to welcome Ambassadors Lehman and Robinson from the Arms Control and Disarmament Agency as well as Dr.Barker and Admiral Fox from the Department of Defense.

There is no more important component of our national security establishment than that of our nuclear deterrent. It is the foundation of our capability to defend our homeland and many of our vital interests around the globe.

Nuclear testing is important in ensuring the viability of our nuclear deterrent and ensuring the safety of the devices in our stockpile. Confidence in the stockpile is important in maintaining stability by convincing friend and potential foe alike that we have a reliable nuclear deterrent force.

These treaties appear to make substantial progress toward resolving the serious defects in verification that dogged the original versions of the treaties negotiated with the Soviet Union. I am a strong believer in former President Reagan's theory

on verification when he was asked by the Soviets to place more emphasis on trust. His answer was to "trust but verify." I too believe in strong verification provisions when it comes to arms control treaties that affect our national security.

Chairman NUNN. Ambassador Lehman, let me ask you one question before we start. Your testimony here is authoritative testimony. We take it as authoritative, is that correct?

Ambassador LEHMAN. Yes, sir.

Chairman NUNN. In terms of the answers given being the answers of the administration?

Ambassador LEHMAN. We will check the record very carefully, yes, sir.

Chairman NUNN. That means that you are speaking for the administration?

Ambassador LEHMAN. Yes.

Chairman NUNN. Ambassador Robinson, can the same be said for you?

Ambassador ROBINSON. Yes, Senator. I am speaking on behalf of the Secretary of State, James A. Baker, III, in my appearance here today.

Chairman NUNN. Thank you very much. Ambassador Lehman,

Before you proceed, I will enter into the record the prepared statements of Senator John Warner and Senator Strom Thurmond.

[The statements referred to follow:]

PREPARED STATEMENT OF SENATOR JOHN WARNER

Thank you, Mr. Chairman. I want to join the Chairman in extending a warm welcome to the witnesses. They are all distinguished individuals and have served the country well in their various positions in the administration. The two treaties that we will hear testimony on today—the Threshold Test-Ban Treaty, or TTBT, and the Peaceful Nuclear Explosion Treaty, or PNET—have been delayed for final Senate advice and consent due to the lack of adequate monitoring and verification protocols. Thanks to Presidents Reagan and Bush, they have negotiated, using the tireless efforts and skill of Ambassador Robinson, the final protocols necessary to ensure that the United States has sufficient monitoring rights for assessing Soviet compliance with the treaties. I now fully support these treaties and hope that the Senate will approve ratification of the agreements in an expeditious manner.

The focus of this hearing today is not to specifically review the treaties and their related protocols—since the Senate Foreign Relations and Intelligence Committees have done an exemplary job—but to examine the military implications of further limitations on nuclear testing. It is my understanding that administration witnesses on the first panel will address their policy vis-a-vis further negotiations to limit nuclear testing. And witnesses on the second panel will address the military implications of further limitations on either the number of tests conducted by the United States and the Soviet Union and/or the yield of the weapon. In this regard, I want to express my support for the President's policy toward future nuclear test negotiations as articulated by Ambassador Lehman in his prepared testimony for this hearing:

". . . the President is firm in his commitment to the step-by-step process and to a Comprehensive Test Ban as a long-term objective of the United States. But we are not there yet. We are convinced that so long as the United states must rely upon nuclear weapons for deterrence, we must also have a sensible program."

I am concerned, however, that a recent declaration recommended to the resolutions of ratification by the Senate Foreign Relations Committee may be construed as being at odds with the President's or, for that matter, long-standing U.S. policy. I will seek clarification from Ambassador Lehman on this issue to ensure that this declaration does not misrepresent long-standing U.S. policy with respect to a Comprehensive Test-Ban.

I look forward to the testimony today, and again want to congratulate the administration for negotiating these important monitoring and verification protocols to the treaties.

Thank you, Mr. Chairman.

PREPARED STATEMENT OF SENATOR STROM THURMOND

Thank you, Mr. Chairman:

I am pleased to join you in welcoming our distinguished panelists. Each of them is a respected expert, and their views on the Threshold Test Ban Treaty and the Peaceful Nuclear Explosion Treaty will be very beneficial to the committee.

Although I support both treaties and expect that the Senate will ratify them, I believe our Nation must make some fundamental decisions regarding nuclear weapons. Primarily, it is the question, what is our Nation's stance on the future of nuclear weapons?

If the decision is made that we will continue to rely on nuclear weapons, then we must continue nuclear testing. If the decision is made that we will not rely on nuclear weapons for deterrence, then we can seek a comprehensive test ban treaty that would be applicable to all nations, not merely the United States and the Soviet Union.

Mr. Chairman, the world has changed significantly since these treaties were negotiated in the mid-1970s. The specter of a nuclear war between the Soviet Union and the United States appears to have diminished and, regardless of the Middle East crisis, the world is a less dangerous place.

However, despite all the changes, our Nation—and, for that matter, the Soviet Union—will continue to rely on nuclear weapons as a deterrent. We, therefore, must ensure that we have the capability to test current and future nuclear warheads, not only to ensure they work and are capable of meeting changing military requirements but, more importantly, to ensure that they are safe.

With regard to the verification procedures permitted under the two treaties, I believe they represent a realistic approach to what is a complex and challenging problem. I would hope our witnesses will clarify two points, the first being the cost of verification procedures; the second is the possible security compromise of our nuclear weapons program due to the on-site inspections provisions in treaties.

Finally, Mr. Chairman, I believe it critical that our Nation periodically review both treaties to determine whether continued compliance with the provisions is in the interest of U.S. national security. This safeguard was among those submitted by the administration, but not included in the list of safeguards recommended by the Foreign Relations Committee.

I expect that we will receive satisfactory answers to my concerns. I also expect that the Senate will proceed to the ratification of these long languishing treaties and, hopefully, make this a safer world for our future generations.

Thank you, Mr. Chairman.

STATEMENT OF AMBASSADOR RONALD F. LEHMAN, II, DIRECTOR, U.S. ARMS CONTROL AND DISARMAMENT AGENCY

Ambassador LEHMAN. Mr. Chairman, we are very pleased to be back here before this committee. I am accompanied by a very distinguished group of experts with whom we worked many long hours on the verification protocols to the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty. I have a rather lengthy statement which I am prepared to submit for the record, and summarize and highlight if you wish.

Chairman NUNN. That will be fine, and we will incorporate your total statement in the record without objection.

Ambassador LEHMAN. Mr. Chairman, let me begin by saying that the administration strongly believes that the ratification of the Threshold Test Ban Treaty, the Peaceful Nuclear Explosions Treaty and the two verification protocols is very much in the interests of the United States, and we would urge the consent to that ratification.

This is an amazing set of verification protocols that has been negotiated, and it has set important precedents for the future. The overall package, we believe, will not only enhance the security of the United States and make the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty verifiable, but it will show

our commitment to the international community to an on-going process of negotiations dealing with limitations on nuclear testing that are in the national security interest of the United States. It will also help us in other ways, such as enhancing our national technical means of verification.

Let me say that the very process of negotiating these treaties has been very useful to our arms control endeavors, and I would like to take as an example the joint verification experiment.

As members of this committee are well aware, we actually reached an agreement with the Soviet Union for a "fly-before-buy" approach to verification of these two treaties. In the joint verification experiment, the United States sent a team with equipment to a Soviet nuclear test site and actually had an on site measurement of a nuclear test, using a hydrodynamic measurement we call CORRTEX, and the Soviet Union came to our site in Nevada and did the same thing.

We believe that this joint verification experiment helped not only to improve the quality of the verification provisions that we subsequently developed, but has set a model that we have now used successfully in other areas. For example, with respect to the Strategic Arms Reduction Treaty—START—we have the so-called START umbrella agreement, under which we have undertaken a number of experiments to help us with verification.

For example, this has included actually observing the front end of two Soviet missiles, including the Soviet SS–18 heavy missile, with the Soviets of course observing the front ends of some of our missiles, to help with the question of warhead counting. Also we had a memorandum of understanding with the Soviet Union on chemical weapons data that resulted in an early exchange of data, to help with verification in advance of an agreement.

So just as the negotiation of the TTBT and PNET verification protocols built upon previous steps, so it set precedents that have been very useful for our subsequent arms control efforts.

The heart of agreement on the two verification protocols is—and in particular this applies to the TTBT verification protocol—is the agreement reached in Wyoming last year, in which the Soviet Union agreed that the United States could have direct hydrodynamic measurement of tests at Soviet sites, and vice versa. It was also agreed that the two sides could have seismic verification methods, and in addition, on-site inspection provisions were also agreed.

Ambassador Robinson will review the verification protocols, and so rather than go into them in detail, I would like to just comment a bit on the overall question of our assessment of the verifiability of these treaties.

Let me say no treaty can ever be one hundred percent verifiable. What we sought to do in these treaties was to achieve a high level of effective verification. At the same time we also wanted to be sensitive to concerns related to protecting national security information and the recognizing that there is only so much money in the world, and that our approaches to verification have to be cost effective and address real problems.

So we focused on what was the fundamental verification difficulty with the Threshold Test Ban Treaty, and that was that, in our view, if you relied solely on remote sensing, the means were subject

to manipulation. There were measures that could be taken to permit one to circumvent the provisions of the treaty. Therefore, we sought the hydrodynamic on-site measurement process. And that was what was agreed. And we felt that verification that permits us to remove circumvention possibilities or limit them was the key, and that was achieved.

As you can imagine, this is a rather revolutionary achievement.

Having done that, we are now being asked what do you do next. What is your next step in the process?

Well, of course, as we have agreed with the Soviet Union, we will be focusing our immediate efforts on a period of implementation of the treaty to ensure that it is working as effectively as we wish. At the same time, it has been the policy of the United States to continue a step-by-step process of negotiations with the Soviet Union, looking towards further limitations, which would be in the interest of the United States.

And we are prepared to propose negotiations on such steps at the appropriate time in the step-by-step process.

Let me say that we have been very successful thus far. We have been successful because we have been tenacious in the negotiations. We have kept our national security requirements and our verification requirements and our cost requirements foremost in our mind. And we would believe that a further continuation of the step-by-step process could be done as long as we keep those principles in mind.

Thank you, Mr. Chairman.

[The prepared statement of Ambassador Lehman follows:]

RONALD F. LEHMAN, II

DIRECTOR, U.S. ARMS CONTROL AND DISARMAMENT AGENCY

Mr. Chairman,

I am pleased to appear again before the Senate Armed Services Committee. It is a special privilege to testify today in favor of Senate advice and consent to ratification of the Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosions Treaty (PNET), and of the verification Protocols to these Treaties signed by Presidents Bush and Gorbachev at the Washington summit. My statement will highlight some of the experiences that led to completion of the Protocols to these Treaties, basic provisions of the Protocols, the importance of verification, and the Administration's position on next steps.

At the outset, let me emphasize that the Bush Administration strongly believes that ratification of the Treaties and their new Protocols is in our national interest. We are confident that compliance with the two Treaties can now be verified effectively if the measures provided for in the new Protocols are used.

During more than two years of intense negotiations with the Soviet Union, the United States steadfastly held to high standards for TTBT and PNET verification. American patience and resolve has yielded very satisfying results.

The Administration believes the Protocols will:

- Provide the U.S. with the long-sought opportunity to verify effectively Soviet compliance with the 150-kt limit of the Treaties, which we have observed since 1976;

- Demonstrate to the international community our seriousness regarding progress in the area of nuclear testing limitations that are compatible with U.S. national security; and

- Offer opportunities for the U.S to improve its national technical means of gathering information on Soviet testing.

THE CONTRIBUTION OF THE JOINT VERIFICATION EXPERIMENT

The development of the TTBT and PNET verification Protocols has furthered our arms control agenda even outside the area of nuclear testing. The Joint Verification Experiment (JVE) associated with the negotiations set a precedent for "fly before you buy" efforts to develop the most practical and effective arms control verification measures. For example, the START umbrella agreement on verification and stability measures has extended the JVE model to the strategic offensive arms negotiations, and the U.S.-Soviet Memorandum of Understanding (MOU) on a chemical weapons data exchange and verification experiment has permitted us to use the JVE approach with the Soviet Union in the chemical weapons negotiations. In addition to providing "hands on" experience in the field before final protocol language was locked in, the 1988 Joint Verification Experiment helped accelerate the pace of agreement on verification procedures related to the 150-kiloton limit on nuclear testing.

At the 1989 Wyoming meeting between Soviet Foreign Minister Shevardnadze and Secretary of State Baker, a breakthrough was achieved in the negotiations. The Soviet Union accepted the routine use of the United States' preferred verification method -- hydrodynamic yield measurements -- and in return, the United States accepted the Soviet proposal for the use of in-country seismic stations in the TTBT Protocol; in addition, the sides agreed to the use of on-site inspection (OSI) as a

supplementary measure to aid National Technical Means (NTM). Such direct on-site measures are unprecedented in the history of arms control. The Wyoming agreement for the use of both hydrodynamic and seismic measures led directly to the historic agreement on the verification protocols signed at the Washington summit.

BASIC PROVISIONS OF THE PROTOCOLS

This Committee is well aware that U.S. concerns about verification postponed ratification of the 1974 and 1976 TTB and PNE Treaties until the United States and Soviet Union could agree upon Protocols for effective verification. So that the U.S. would not have to rely on remote seismic national technical means (NTM) for verification of Soviet compliance with the 150-kt limit, we have secured verification provisions in the two new Protocols providing for the use of the hydrodynamic yield measurement method. This method is designed to provide reliable, accurate, on-site means of measuring the yield of Soviet nuclear explosions without gathering sensitive nuclear weapon design information.

Let me outline the basic provisions of the new Protocols:

Under the terms of the TTBT Protocol, the sides will have the right to carry out:

- Direct, on-site hydrodynamic yield measurements in a satellite hole for all nuclear tests declared to have a planned yield over 50 kt. (CORRTEX -- COntinuous Reflectometry for Radius versus Time EXperiments) is the name for the U.S. method);

- On-site confirmation of the geology near an emplaced nuclear device and of test emplacement conditions, and observation of the emplacement of the nuclear explosive canister for all tests declared to have a planned yield greater than 35 kt;

- For tests conducted in so-called "non-standard" conditions, the right to carry out hydrodynamic measurements on a "reference test" and to employ an extended hydrodynamic technique (the U.S. technique is called "hydro-plus");

- Collection of regional seismic data, from temporarily deployed seismic equipment, at three stations on the territory of the Testing Party for all tests declared to have a planned yield over 50 kt;

- Hydrodynamic measurements on a minimum number of nuclear tests, regardless of declared yield, at existing test sites and at a new test site, if one is opened; and

- Hydrodynamic measurements on each explosion in a test consisting of more than one explosion if the planned aggregate yield exceeds 50 kt.

Under the terms of the PNET Protocol, the sides will have the right to carry out:

- Direct, on-site hydrodynamic yield measurements in the emplacement hole for all nuclear explosions declared to have a planned yield over 50 kt;

- On-site inspection of the geology near the emplaced nuclear device and of emplacement conditions, and observation of the emplacement of the nuclear explosive canister for all nuclear explosions declared to have a planned yield over 35 kt; and

- Data collection from a temporarily installed local seismic network around the site of the explosion, for the purpose of confirming the number of individual explosions in a group explosion, in the special case where the group explosion has a planned aggregate yield over 150 kt -- provided the Verifying Party is satisfied with the package of verification measures for such a group explosion.

THE ROLE OF VERIFICATION

Guiding principles

Let me outline a few principles which formed the basis of our verification approach to the Treaties:

- The Protocols should provide the right to use direct, on-site methods of yield measurement resistant to manipulation by the other side.

  Thus, the U.S. pursued measures that allow monitoring near the source of an explosion instead of remote measures whose interpretation could be affected by manipulating test conditions.

- The Protocols should provide rights to confirm independently information necessary to verification.

  Thus, the U.S. pressed for agreement that all data exchanged under the Protocols be subject to confirmation by the other side. In the Soviet Union, this means allowing U.S. inspectors either to observe Soviet personnel as they take measurements or allowing U.S. inspectors to take their own measurements with their own equipment.

- Given the uncertainties associated with seismic monitoring techniques, the Protocols should entitle the Parties to make hydrodynamic yield measurements of all nuclear tests or explosions which could appear by remote observation to exceed the 150-kt threshold.

  Thus, the Protocols entitle the Verifying Party to carry out hydrodynamic yield measurements on all tests or explosions whose planned yields exceed 50 kt. In addition, if the Verifying Party does not elect to use the hydrodynamic yield measurement method on a test or explosion with a planned yield above 50 kt, the Verifying Party has the right to carry out on-site inspection. The Verifying Party also has the right to carry out on-site inspection for all tests or explosions whose planned yields exceed 35 kt and do not exceed 50 kt.

The achievement of verification provisions in accord with these principles allows this Administration to conclude that the Protocols provide for effective verification of the Treaties. Effective verification is designed to:

- Deter Soviet violations by increasing the likelihood of U.S. detection;
- Permit timely detection of Soviet violations so as to allow the U.S. to formulate appropriate responses; and
- Ensure confidence in the agreement.

Verification assessment of Protocols

While no verification scheme can provide 100% certainty of compliance, we are confident that the Protocols provide the

opportunity to prevent Soviet exploitation of the ability to test in cavities or porous media in ways that muffle the energy of the explosion. The key is our right to use our preferred verification method -- direct hydrodynamic measurement -- for every test or explosion with a planned yield exceeding 50 kt.

In addition to permitting direct yield measurement, the use of the hydrodynamic method at Soviet test sites has the added benefit of building a database of validated yield measurements which, over time, would allow us to assess and possibly improve the accuracy of our NTM seismic yield estimates.

The continuing importance of verification

As we move toward agreements on strategic nuclear forces, conventional forces, and chemical weapons, the objective of effective verification -- fulfilled by the Protocols to these two nuclear testing treaties -- will remain a centerpiece of our concerns.

In pursuit of this objective, we will need to continue to rely heavily on U.S. technical and human resources. It follows that funding for these resources needs to be provided. For its part, the arms control community has the responsibility to keep the costs of verification measures as low as possible, consistent with the need for effective verification, so that we are able to fund all necessary verification measures.

There are three concerns to keep in mind in selecting verification tools for any given arms control agreement. As I

have just stated, the first is that the costs of verification technologies and schemes should be as low as possible given our verification requirements, and they must be consistent with national capabilities to support verification. Second, they must be conform to our technology transfer objectives so that they are exportable to the parties to a particular treaty. Third, they must contribute to U.S. verification goals while being acceptably non-intrusive to all parties to an agreement.

With respect to the new testing Protocols, the Administration has reason to believe it has met the objectives I outlined. On-site yield measurements are acceptable to both sides. There are no technology transfer obstacles to exchanging seismic equipment and CORRTEX equipment of the type planned. And we have reason to believe that costs will be manageable in the interest of effective verification.

That there are financial, technical and political constraints on the ability to propose, procure and employ U.S. technology for arms control verification is not a new idea. Costs, for example, have always been a factor in U.S. verification decisions. There are always more verification activities that can be added to a given arms control regime in an attempt to increase our confidence that parties are in compliance with the regime.

The Bush Administration has undertaken a number of initiatives to advance ongoing negotiations and to enhance our confidence in providing effective verification for evolving arms control regimes. Examples are, of course, the JVE, and other U.S. initiatives such as the Memorandum of Agreement on chemical

weapons destruction (the "CW MOU") and the START umbrella agreements on verification methods. Together with earlier agreements such as the INF Treaty and the Stockholm agreement, we are building a base of experience, including a base of experience on resource and cost issues. As we begin to gather lessons from our experience, the Administration will share them fully with Congress -- whether the issue is costs or other aspects of implementation -- so that working together we can have assurance that verification funds are used efficiently and effectively.

NEXT STEPS

As we put into practice the new verification protocols to the nuclear testing treaties, the U.S. will be ready to propose negotiations on possible further limitations that make sense from a national security standpoint, contribute to stability, and still guarantee a reliable, safe, and effective deterrent.

As the Administration has pointed out in numerous public statements, and in letters to the Congress, the President is firm in his commitment to the step-by-step process and to a Comprehensive Test Ban as a long-term objective of the United States. But we are not there yet. We are convinced that so long as the U.S. must rely upon nuclear weapons for deterrence, we must also have a sensible test program. As Dr. Barker will point out, the U.S. tests nuclear weapons for many reasons, but recent reports regarding concerns about meeting the highest safety standards for U.S. nuclear warheads perhaps best underscore the importance of testing, both as a vehicle for

detecting possible weaknesses in weapons safety and in devising appropriate corrective measures for any such weaknesses. To do otherwise would create uncertainty as to the safety of the stockpile, and render us unable to make safety improvements and unable to react to new threats. This would tend to erode stability, not enhance it.

As I have mentioned, the Protocols establish extensive on-site presence at the test site by the Verifying Party. They permit yield measurement techniques using complex instruments in the immediate vicinity of a test. The President believes that the unprecedented nature and complexity of these verification provisions require -- as a practical matter -- that we gain some experience with them as a guide to the character of the most appropriate next steps toward further limitations on testing. This approach entails learning how well the new nuclear testing verification regime works as a necessary foundation before considering further nuclear testing limitations.

CONCLUSION

Again, let me underscore the Administration's support for the TTB and PNE Treaties and their excellent verification Protocols. Along with the appropriate safeguards, which Admiral Fox will outline, we urge the Senate to give its advice and consent to ratification of these agreements. They break new ground in verification and are a sound foundation for the important work ahead of us in other areas of arms control.

Chairman NUNN. Thank you, Ambassador Lehman. Ambassador Robinson.

STATEMENT OF C. PAUL ROBINSON, AMBASSADOR, U.S. DELEGATION TO NUCLEAR TESTING TALKS

Ambassador ROBINSON. Thank you very much, Mr. Chairman.

I have also prepared a written statement for the record. I would like you to accept it, and I will just summarize briefly some of the contents.

Chairman NUNN. Without objection, it will be made part of the record.

Ambassador ROBINSON. I will concentrate on the protocol to the Treaty on Limitations of Underground Nuclear Weapons Tests, the "Threshold Test Ban Treaty," with the acronym TTBT. Although we have achieved similar provisions in the two protocols, TTBT and in the Peaceful Nuclear Explosions Treaty, the TTBT received the greatest attention during the course of the negotiation, and we believe it will likely be the most utilized in the future. You will recall our past concerns that some tests of the Soviet Union likely exceeded the commitment made when the negotiations closed in 1976 to honor the 150-kiloton yield limit. There were no instances, however, where we filed demarches associated with explosions for peaceful purposes. Again, weapons testing was the principle concern.

The committee should, however, note that evasion of both treaties would have been possible under the originally negotiated verification measures. For certain evasion possibilities, we would have believed that the limit was being complied with, even though our estimates of the yield obtained through national technical means might have appeared to be under 150 kilotons. Thus, the new agreements were essential to be able to effectively verify both treaties.

I can say the inability of the U.S. to determine whether or not the Soviets had or had not violated the 150-kiloton limit with surety was itself sufficient reason for the United States to negotiate the more stringent verification goals.

In order to provide improved verification and plug these existing loopholes it was necessary to obtain unprecedented on-site and in-country verification measures. Our key aims were, first, to obtain the right to make direct on-site measurements of the yields of tests, or explosions, that otherwise might exceed 150 kilotons; and second, we wanted to be able to validate the conditions under which the explosions and tests will take place.

By the validation process, we mean that all the information that is to be used for verification must be derived on-site by U.S. personnel with U.S. instruments, without the possibility of any interference by the Soviets. The first verification right, one which we consider to be really the cornerstone of the verification provisions, is the right to make on-site hydrodynamic yield measurement for every test or explosion whose planned yield would exceed 50 kilotons.

Hydrodynamic yield measurement is that technique which directly measures the velocity of the shock wave produced by the ex-

plosion, and it leaves open little, if any, possibility to evade the 150-kiloton yield limit mandated by the treaty. And the second verification right is the right to carry out on-site inspection. This applies for every test or explosion whose planned yield would exceed 35 kilotons. Under this OSI regime, the verifying party has the right not only to validate the conditions of emplacement of an explosive, but also to collect geologic samples of soil around the explosive for later use in interpreting the seismic signals we see.

The third verification right applies for those tests whose planned yield would also exceed the 50-kiloton trigger level. It is the right to in-country seismic measurements at three stations designated by each side. This was included to allow the use of a certain seismic wave.

These three represent a primary verification package within which each side will have the freedom of choice to select those that it will depend on. Taken together, along with the use of national technical means, I think they provide a fabric of measures, each supporting the others, to ensure a level of verification that will be the most comprehensive ever developed for an arms control agreement.

I want to stress particularly to this committee today, however, that the new protocols also provide each side a right to pursue a legitimate test program, with a minimum of additional restrictions on those programs. My prepared statement lists some of the restrictions it was necessary to include in the interest of effective verification. An example would be the prohibition of tests within cavities larger than a specified size. Each of the restrictions was very carefully evaluated before their inclusion and are acceptable limitations to the U.S. program.

While both the United States and the Soviet Union will have the same opportunities to test, both will now, and for the first time, be able to effectively verify compliance of the other,under the treaty limits. This is no small accomplishment.

The protocols which resulted from two-and-a-half years of rather intense negotiations in Geneva protect vital U.S. nuclear testing needs, ensure that the Soviet Union will hold to the same treaty limitations as we do. And the treaties will, by that, increase our overall national security.

Thank you very much, Mr. Chairman.

Chairman NUNN. Thank you.

I will ask the clerk to notify us after about 6 minutes.

Ambassador Lehman, on September 11, you provided the Foreign Relations Committee with a letter containing various clarifications and assurances concerning the meaning of the Threshold Test Ban Treaty protocol as it applies to changes that can be made without requiring an amendment, and hence, without Senate approval. The Foreign Relations Committee was satisfied with these representations and chose not to incorporate this shared understanding as to the meaning of a treaty as a condition in the resolutions of ratification it reported Friday.

My question is, can the Senate rely on the administration to adhere to this shared understanding if the Senate does not explicitly incorporate the understanding in its resolution of ratification?

Ambassador LEHMAN. Yes, Mr. Chairman.

Chairman NUNN. If so, can we assume that your assurance applies in all other instances in these treaty ratification proceedings, wherein the Senate and executive branch, as a result of authoritative testimony and other official communications, reach shared understanding as to the meaning of the treaties and their protocols?

Ambassador LEHMAN. Yes, Mr. Chairman.

Chairman NUNN. On September 14 you provided the Foreign Relations Committee with a second letter on this subject in which you gave the further assurance that the administration would provide the Senate prior to notice of technical changes in the TTBT protocol that do not require submission to the Senate in the form of amendments.

I have two questions, is this prior notice to the Senate required by the TTBT protocol?

Ambassador LEHMAN. It is not explicitly referenced in the protocol, no, Mr. Chairman.

Chairman NUNN. And also it is then fair to describe this assurance as a commitment the administration is making of its own volition in the name of maintaining a cooperative and consultive relationship with the Senate in this area?

Ambassador LEHMAN. You can rest assured that our highest priority is a cooperative, consultative relationship, Mr. Chairman.

Chairman NUNN. Can the Senate rely on the administration to adhere to this commitment if the Senate does not explicitly incorporate it in the form of a condition to its resolution of ratification?

Ambassador LEHMAN. Yes, Mr. Chairman.

Chairman NUNN. Ambassador Lehman, on September 13 General Scowcroft, the President's national security advisor, wrote Senator Cohen a letter in which he provided an assurance that the administration would expeditiously implement, quoting from that letter, "effective counterintelligence and security measures to protect U.S. personnel and programs from improper collection of information by Soviet on-site inspectors or monitors."

Can the Senate rely on the administration to adhere to this commitment if the Senate does not explicitly incorporate it in the form of a condition to its resolution of ratification?

Ambassador LEHMAN. Once again, the answer is yes, Mr. Chairman. This is an area where the administration feels very strongly that these are issues to be addressed. We worked very hard on them.

They are often, as you know well, very complex and involved, very sensitive activities, and we have to make sure that the left hand knows what the right hand is doing at all times and work together on them.

So this is one area in which we are proceeding, we believe, in the same spirit. So yes, you can indeed.

Chairman NUNN. When will this assessment be done? I am talking about the counterintelligence and security measures, when will this assessment be done and who will oversee it?

Ambassador LEHMAN. This assessment overall is handled in an interagency process, ultimately through the National Security Council to the President. There is an interagency process at a lower level that will undertake the monitoring of this process to

ensure that the input that is provided meets the concerns of all the departments and agencies concerned.

Typically it is a National Security Council staff effort oversight, but given the detailed nature and the sensitive activities, much of this will be done in the intelligence community or in the defense community or in the Department of Energy.

Chairman NUNN. Ambassador Lehman, on October 10, 1986 President Reagan wrote the Congress a letter in which he pledged that once the TTBT and the PNET verification protocols had been achieved and the two treaties had been ratified, the United States and the Soviet Union would, quoting him, "immediately engage in negotiations on ways to implement a step-by-step parallel program in association with a program to reduce and ultimately eliminate all nuclear weapons, of limiting and ultimately ending nuclear testing."

In return for this pledge the House of Representatives agreed in the conference on the fiscal year 1987 Defense Authorization bill to drop a provision which would have mandated a comprehensive test ban. You are familiar with that background.

In your opening statement you stated that the administration regards, "learning how well the new nuclear testing verification regime works as a necessary foundation before considering further nuclear testing limitations."

It sounds like you are going to have a pause here in the nuclear testing talks. Is that going to be a lengthy pause, 6 months, 1 year, 2 years? What is your best judgment?

Ambassador LEHMAN. Mr. Chairman, first of all, let me say there is no change in our policy or in our commitment to the step-by-step process. With respect to our bilateral negotiations with the Soviet Union, we believe it would be useful to have a period of reflection on the implementation of the TTBT and the PNET.

At the same time, as you know, this is in the process of ongoing reductions in nuclear arms, and we are hopeful that we will be concluding the strategic arms treaty very, very shortly. As we have a chance to continue our efforts, we will be discussing the actual dates with the Soviet Union, so after we have taken a look at how the implementation is going, after our review of what the next step in terms of a negotiating position should be, we would then be talking to the Soviet Union and subsequently coming up with a date.

I do not have a precise time frame for you. I do not think it is extremely lengthy.

Chairman NUNN. You think it would be closer to 6 months than to 3 years or do you want to get that specific?

Ambassador LEHMAN. Well, I guess if I were——

Chairman NUNN. Are you talking about a matter of months or are you talking a matter of years? That is pretty broad.

Ambassador LEHMAN. Yes, I think we are looking towards what is necessary to see the implementation of the treaty. So for example, it will be about 200 days after notification of our first monitored test, so I think that gives you something of a time frame that we are talking about.

That is to say, we think we ought to have some implementation before we commit to specific proposals in the negotiation.

Chairman NUNN. Sounds to me like you are not talking about years. Is that a fair assumption?

Ambassador LEHMAN. We are not talking about years.

Chairman NUNN. Does the administration have any preliminary thoughts as to what the next phase of these talks might entail? For example, will we propose a lowering of the 150-kiloton threshold and annual quota on the number of nuclear tests that can be deducted or some combination of the two or something else? Do you have any observations on that?

Ambassador LEHMAN. Mr. Chairman, you have identified a number of the options that have been under study. As I say, we have not yet identified a next step. But we are looking at it from the point of view of our experience with the TTBT verification in the context of our overall progress on arms reductions, but most importantly in the context of the national security of the United States, and that is what we will be looking at most carefully.

Chairman NUNN. Ambassador Robinson, my final question on this round would be to you, and that is, what are the Soviets talking about? What is their position as to when the talks should resume and what the objectives should be for the next phase?

Ambassador ROBINSON. Mr. Chairman, the Soviet Union has, in the course of the negotiations, made several suggestions. First, that they might be ready to begin in the early autumn. Most recently as we closed the negotiations, they suggested next spring.

The Soviet Union, as the United States, has said that there is no restriction on what could be proposed by either side, everything from limits on test numbers, to limits lowering the yield limit. The Soviet Union has proposed even going to a comprehensive test ban.

I might comment, Mr. Chairman, our original agreement on the step-by-step process with the Soviets suggested that the verification measures that we were going to incorporate in these protocols would likely be the measures that would be incorporated in the next steps.

It is for this reason, particularly as we have found them to be so complicated in their implementation, that we think as a practical matter we need to gain some experience. Now in the 200 days following the entry into force of the treaties, there will be lots of activity going on between the two sides.

The protocols require all the equipment that is going to be utilized by either side to be presented to the other side for counterintelligence inspection, the qualifying of that equipment.

That will be happening as we move forward. Then when we begin to use that, we can evaluate just how good this verification regime looks in supporting proposed next steps.

Chairman NUNN. Thank you. My time has expired. Senator Lott?

Senator LOTT. Thank you. These verification provisions contained in the treaties are pretty far removed from what has been the traditional Soviet perspective. I know these are unusual times and there have been a lot of changes in the negotiations, but would you comment further on that aspect of the negotiations and how far removed we are from what has been their position in the past and really how much have they changed?

Ambassador LEHMAN. Senator, the evolution of the Soviet position on verification since the 1940's is something, really, to exam-

ine. It began with a general statement at the time of the Baruch Plan that basically verification should be based on trust. There was a period when some Soviet officials denied the legitimacy of what we now have come to call and to rely upon as "national technical means", based wherever they may be, including in outer space.

There was a time when the Soviet position evolved to permitting on-site inspection in Antarctica. In fact, many people do not realize it, but every year under the provisions of the Antarctic Treaty we actually inspect Soviet facilities in Antarctica. In the Outer Space Treaty they agreed to on-site inspection of celestial bodies. Our problem was getting them to agree to on-site inspection of the Soviet Union.

Eventually, their position was modified such that under the Peaceful Nuclear Explosions Treaty there were some very limited circumstances under which one could have on-site inspection of the Soviet Union. Over time, their position began to evolve towards conditioned on-site inspection, but more on-site inspection. But at one point General Secretary Gorbachev said that he had reached the conclusion that verification should be no obstacle.

Senator LOTT. When was that?

Ambassador LEHMAN. I think that was about 1986. I will get you the exact date but I think it was about 1986. Our problem was that we had difficulty translating that into agreement to very specific verification provisions. But in time that changed. I think that Ambassador Robinson's success on the verification protocols showed that in time, when the political leadership in the Soviet Union said wanted to resolve these specific issues, that the Soviet Union was relatively forthcoming, and he should comment on that.

But I would like to add a broader point here, and this is something I think that many people who look at the verification issue do not recognize, and that is that there is a relationship between what I will call verification glasnost or military glasnost (in terms of confidence-building measures and data exchange) and political glasnost by insisting that the Soviet Union open up for arms control reasons. I think that we have reinforced the political opening up of the East and so I think this is one of the hidden spinoffs of the arms control process.

But let me invite Ambassador Robinson to talk about his——

Senator LOTT. Ambassador Robinson, I would like to get your reaction but also I would like for you to maybe address the second part of that question. I think you inferentially referred to it, but one of the concerns I know you have had is the transfer of technology in this verification. Now, what about that in these two treaties? Do we have that risk and are you not concerned about it? What are the protections for that?

Ambassador ROBINSON. Senator Lott, I think it is not an oversimplification to say that the Soviet view for the previous decade for on-site inspection was, they believed it was, the equivalent of spying. Therefore they closed their military facilities and their sensitive facilities to any travel of people from the West and that was their way of protection. Thus any on-site presence of U.S. inspectors would change the situation.

The first signal was in the INF Treaty that they might be prepared to move forward. While INF was still being negotiated, we

moved in to Geneva and were able to negotiate the agreement to hold the Joint Verification Experiment, and indeed our inspectors were the first ever to travel into the Soviet Union for an arms control inspection.

The Soviets told us at the time that not only were our inspectors the first Americans, but also the first foreigners, to ever set foot on the Soviet nuclear test site. So this certainly implies there was considerable change going on in their view, to allow their principal adversary into this sensitive facility.

I must say, however, that the record since is somewhat mixed. As we began in INF, though in general we had very good success in implementing the provisions, from time to time there were some difficulties where a particular Soviet commander would interpret the provisions differently, and we had some fairly serious problems.

The solution seemed to be, you must put a lot of detail down into the protocols if you really expect to be able to rely on it. I think it is safe to judge that our experience in INF, particularly the negative experience, caused us to be a lot more careful in our negotiations and probably added 9 months to 1 year in increasing the time it took. And I think the protocols that you have seen, which are rather lengthy and have a great amount of technical detail in them, are a result of that.

So while there is some tendency for the Soviets to move, they are certainly careful in the way in which they do move. And unless you are protected with your rights clearly spelled out, you can lose those rights when you try and exercise the protocol.

Senator LOTT. What about the technology transfer concerns?

Ambassador ROBINSON. Technology transfer concerns with the principal verification method turned out to be something that we did not have to worry about. We found the Soviets had developed their own equivalent verification method, equivalent of our CORRTEX hydrodynamic method, and I think it is fair to say that its scientific level of development is just as advanced as ours.

The key thing that we worried about, and it is the worry anyone would have in allowing someone into a sensitive nuclear test site, is "What information can they derive about what we are really carrying out in the test?" Now the protocols said that the inspection shall not be allowed within any explosive canister itself or within the diagnostic canisters. These are off-limits to inspectors.

What one still had a worry with is "What about the ability to record any electronic signals coming from down the hole (where the device is placed) at the time of the explosion?" For this there is an extensive section on anti-intrusiveness devices which you have the right to use, to try and block any transmission of verification signals during the period when the electromagnetic pulse is occurring, at the time of the explosion.

I think with the level of detail included in the protocol and the use of these anti-intrusiveness devices, we can be very sure that we can protect U.S. technology in nuclear weapons, while at the same time preserving the essential goal, which is to verify that the yield of the test does not exceed the mandated limit.

Senator LOTT. Thank you. Ambassador Lehman, the resolution for ratification for TTBT and PNET will have a recommended declaration that was proposed by the Senate Foreign Relations Com-

mittee. This declaration includes five safeguards to protect U.S. technical capabilities in the event the Soviet Union violates or abrogates the treaties and protocols. These safeguards were modeled on six safeguards originally proposed by the administration in their letter of transmittal. Would these safeguards recommended by the Senate Foreign Relations Committee invalidate the administration's proposed safeguards, or would you still use your six for purposes of administration policy?

Ambassador LEHMAN. Senator, it is my understanding that after discussions with the Senate Foreign Relations Committee, that they are talking about the safeguards program that we have in mind, and we believe that the safeguards program is essential.

Senator WARNER. Could you yield? Just talking with them, is that informally or on the record? Is there something to back that up factually? Your phrase, just talking with them, I have got to have some clarification of that.

Ambassador LEHMAN. Senator Warner, we said we wanted a strong commitment to the safeguards. Let me say that it was the position of the administration that we wanted a clean resolution of ratification. That is to say, we did not insist that these be in there. But we did want a strong commitment from the committee to the safeguards. Their way of doing that was to put these safeguards in the resolution of ratification.

Senator WARNER. Where is the record of this conversation that you feel clarifies their objectives?

Ambassador LEHMAN. We have——

Senator WARNER. In other words, when we go to the floor of the Senate, is a written record available?

Ambassador LEHMAN. There is a written record. There is a committee report, and of course there is the resolution itself which contains the safeguards.

Ambassador ROBINSON. I might add, the Administration does strongly support the language of the safeguards, the particular safeguards that appear in that resolution.

Senator LOTT. Well that was my question, the six specific safeguards or when you say safeguards, do you mean the safeguards?

Ambassador LEHMAN. We mean these safeguards.

Ambassador ROBINSON. These specific statements, as they appeared in that resolution, the administration supports.

Senator LOTT. Does the Senator wish to pursue this further?

Senator WARNER. No. As long as you are satisfied.

Senator LOTT. Just one other question and I will yield my time. Ambassador Lehman, the Senate Intelligence Committee recommended a condition of the resolution of ratification concerning prior notice of all changes to the monitoring provisions of the treaty protocols. This condition was not endorsed by the Senate Foreign Relations Committee but is discussed in their report as an assurance received from the executive branch. What is the administration's intent on prior notice?

Ambassador LEHMAN. On the question of the changes in the protocol, we have made it clear that we will give notification to the Senate before any such modifications or changes become binding, and that was recorded in a follow-on letter from me to Chairman Pell. That letter was referenced by Chairman Nunn, and he asked

me if the administration stood behind that letter, and I said that we do.

Senator LOTT. Thank you.

Senator WIRTH. Thank you very much for being here. I have two very specific questions and then a couple of little broader issues I would like to raise. First, specifically, Yevgenny Velikov is holding a series of hearings in the Supreme Soviet at the end of September, 26–28, on the future of the Soviet nuclear test program. They have invited scientists from Los Alamos and scientists from Lawrence Livermore. Apparently, the Department of Energy and the administration have discouraged our scientists from going. Do you know anything about that conference and about that policy? If you do not maybe you can get back to us with an answer on that.

Ambassador LEHMAN. I would be prepared to get back to you with an answer. In general, we have had a process whereby our Government and their Government can talk about these matters. But let me get back to you with an answer.

Senator WIRTH. It is our understanding that these scientists who do want to go or who would like to go, and who would find out more about the Soviet nuclear testing program engaged in that discussion and they are being discouraged officially from doing so. If you could check that out we would appreciate it.

Ambassador LEHMAN. Senator, I would be glad to. As you know, we have encouraged many types of contact. The timing and the persons involved, sometimes in certain contacts, sometimes conflict with our ongoing efforts.

Senator WIRTH. If you could get an answer that would be helpful.

Ambassador LEHMAN. I would be glad to.

[The information follows:]

The administration has not received any invitations from the Soviet Government requesting the participation of U.S. laboratory experts in these proceedings. We understand that the invitations in question were extended through private channels.

Senator WIRTH. Second, a very specific question. On the House side Congressman Spratt, and over here Senator Kennedy and I have offered legislation for a permanent ban on plutonium production. We stopped producing plutonium, I think, in late 1988. The Soviets have stopped producing plutonium. We both appear to have great stockpiles of it. With arms control there is going to be even more plutonium out there. Does the administration have a position on ceasing plutonium production? Officially and formally, the production of plutonium has stopped now for safety reasons, but not for stockpile reasons. Do you have any knowledge of any administration position on that?

Ambassador LEHMAN. We have not favored any negotiation or formalization of such an arrangement.

Senator WIRTH. Why is that?

Ambassador LEHMAN. For national security reasons, to maintain our flexibility to guarantee the nuclear stockpile will have the types and numbers that would be necessary for deterrence.

Senator WIRTH. Mr. Ambassador, could you also give a formal reply on that, what you think the stockpile is now and then what the national security ramifications are.

Ambassador LEHMAN. Yes.

Senator WIRTH. I would appreciate that, especially in light of the fact that we have apparently an enormous amount of plutonium in the stockpile or a significant amount, that that is going to increase very significantly if more weapons come back.

The Soviets have stopped producing plutonium and the logic would appear that maybe we ought to formalize this and come to an agreement between the two on the reduction, and I would like to get your answer on that. I would appreciate it.

Ambassador LEHMAN. I would be glad to provide that for the record. Also, in closed hearing we could go into that in more detail.

[The information follows:]

For national security reasons, the United States is opposed to setting limits on strategic materials necessary for maintenance of the U.S. nuclear stockpile. Such an agreement would also pose significant verification problems.

As for specifics, the administration has received the legislation embodying the concept you have described (section 3141 of the Fiscal Year 1992 DOD Authorization bill) and is preparing a detailed response to your question which will state more fully administration objections.

Senator WIRTH. Let me jump to your testimony on page 10, to make sure I understand it, going back to Senator Nunn's questions on the comprehensive test ban treaty. You say that the President is firm on his commitment to the long-term objective of the United States to arrive at a comprehensive test ban.

So our long-term goal is to arrive at a comprehensive test ban, is that right?

Ambassador LEHMAN. That is correct.

Senator WIRTH. You also say then, a little later, right after that, that we are convinced that so long as the United States must rely upon nuclear weapons for deterrence, we must also have a sensible test program.

Ambassador LEHMAN. That is correct also.

Senator WIRTH. So therefore you are saying that our long-term objective is to get rid of all nuclear weapons. That is the only way that we can get rid of all testing, by the logic of your statement on page 10—is to get rid of all nuclear weapons.

Is that the administration's policy?

Ambassador LEHMAN. Clearly, we want to create a world in which we would not be that dependent on nuclear weapons. What that world really needs to look like out there——

Senator WIRTH. Mr. Ambassador, if our long-term objective is to have a comprehensive test ban treaty, but as long as we have any nuclear weapons, as you say here, we have to have a sensible test ban program, therefore, our long-term objective in arriving at a comprehensive test ban treaty is to get rid of all nuclear weapons.

That, by the logic of what you are saying here, is the only way of getting to a comprehensive test ban treaty.

Ambassador LEHMAN. In fact, Senator, it goes beyond that. By the Arms Control and Disarmament Act, is it the policy by law of the United States to seek complete and general disarmament. That is not a near-term objective, but it is our objective out there that gives us at least a sight of where it is that we go in the long term.

The relationship of the CTB to that objective is very much a question about the distant future. Our point is really this, and that

is that we are seeking to reduce nuclear weapons. We are seeking to reduce the threat of nuclear weapons.

Ultimately, one way you reduce the threat of nuclear weapons is to achieve a world in which they are no longer necessary. But as long as we are going to have them and rely upon them the way we do today, we believe we have to test.

We have to do that for reliability. We have to do that for safety, for security.

Senator WIRTH. I understand those reasons, the logic of it. The reverse of this then, is that we can never have a comprehensive test ban treaty until we have a nuclear-free world. That is what you are saying as well, is that right?

Ambassador LEHMAN. I am not sure that the policy statement of the U.S. Government takes that final step. That is to say, you are talking about a very distant time and what the conditions have to be in which you would stop testing but still have nuclear weapons or whether you have to have them all gone, but that is still something—I hesitate to say totally hypothetical, but it is very distant.

Senator WIRTH. I would have you look at your statement. I realize that you are putting some shades into this discussion, but the logic of what you say here or the reverse of that is very simply that we cannot have a comprehensive test ban treaty until there is a world that is free of nuclear weapons. That is the logical conclusion that comes out of this.

I do not know if you saw the Reuters story from Geneva in yesterday's, in Sunday's New York Times, on the apparently very significant disagreement between the United States and scores of developing nations over a comprehensive test ban treaty and the relationship of that to the nuclear nonproliferation treaty.

Given where we are today with Iraq, given the very deep concerns that the United States has about nuclear nonproliferation or the proliferation of nuclear weapons in Iraq, it would seem that it should be our national policy to do everything we could to do such things as have random on-site inspections of countries suspected of diverting nuclear technologies to the military, and a call to exporters of nuclear technology to require full-scale safeguards.

But because of what I would describe as recalcitrance on the comprehensive test ban, we are not reaching to these other steps, nor are we therefore receiving the very broad support of so many other nations for a much more aggressive and tougher comprehensive test ban or a nuclear nonproliferation treaty.

Maybe you could respond to this. Maybe this story is inaccurate. I hope it is.

Ambassador LEHMAN. Senator Wirth, I think it is inaccurate. I think the worst part of the story, as is so often the case, is the headline. The next worst is the opening. By the time you get down to the last few paragraphs, it seems to be a little bit closer to what I experienced in Geneva and what our team in Geneva experienced.

Senator WIRTH. That is what I was quoting, the last paragraph, which I thought was the most disturbing.

Ambassador LEHMAN. No, what was disturbing was the question of whether or not certain positive things were lost and I think the answer is when other nations, not the United States, refuse to join

consensus on a final document, then some of those things, at least in terms of their formal adoption by consensus by the NPT Review Conference, was lost.

But let me put the conference in its proper perspective. It was actually a very successful conference. The basic features of the treaty were reaffirmed. The importance of the treaty was reaffirmed by almost all of the countries present.

The Article 4 dealing with nuclear cooperation received a very good report from the United States and other nuclear states, supplier states, that was very well received.

Let me say that the nicest part in many ways was Article 6, which had to do with arms control achievements, in particular in the minds of many countries reflecting on the nuclear weapons states. We were in a position to demonstrate incredible achievements in the area of arms control.

In short, it was in many ways a very successful NPT Review Conference. A document, a consensus document was not achieved. In particular, Mexico and Iran had a precondition that was not widely shared, and they blocked a consensus document, and that is disappointing.

But overall, the conference went quite well, and as some of the items you have cited indicate, there were a number of useful developments.

Senator WIRTH. Mr. Chairman, thank you very much. I look forward to hearing from you on those other items.

Chairman NUNN. Thank you, Senator Wirth. Senator Warner?

Senator WARNER. Thank you, Mr. Chairman. I extend congratulations to both of you for a lot of hard work. As we go to the floor of the Senate, I want to make sure this record is clear on a couple of points, Ambassador Lehman.

You recall that when you were an able advisor to this committee, I believe we worked on the SALT II Treaty which never came to fruition, but we prepared that record. Do you remember that? That is what we have to do now.

Let us turn to this recent declaration recommended by the Foreign Relations Committee, and I want to approach it from a slightly different angle than my colleagues. Do the LTBT and NPT commit the United States to seek the discontinuance of all nuclear weapons for all time, as stated in the resolution of ratification approved by the Senate Foreign Relations Committee?

Ambassador LEHMAN. Senator, let me take them one at a time. The LTBT preamble has language that says that——

Senator WARNER. Why do you not give me a short answer and then build on it.

Ambassador LEHMAN. All right. Basically——

Senator WARNER. Not basically, short answer.

Ambassador LEHMAN. Short answer. No.

Senator WARNER. That is what I wanted. Now build all you wish.

Ambassador LEHMAN. This is very similar to the question raised by Senator Wirth.

Senator WARNER. I want a clearer and crisper answer.

Ambassador LEHMAN. You have got it. It is the policy of the United States to seek a better, safer world. In the future one could

imagine a concept of complete and general disarmament. Let me say I do not have any proposals for that in my hip pocket.

We have as a long-term objective of the United States a comprehensive test ban, but we also have made it clear that so long we must rely upon nuclear weapons such as we do, we are going to have to have a reasonable program for testing.

So we are in that sense proceeding down the path that is envisioned in the preambular language of the LTBT. Now that LTBT language is accompanied by language very similar to the description of U.S. policy.

You mentioned also the nonproliferation treaty. It does refer back to the LTBT, but it also has the famous Article 6 and the Article 6 does not reference nuclear testing per se at all. It speaks of a broader disarmament program and the elimination of the nuclear arms race and the cessation, elimination ultimately, of nuclear weapons.

Senator WARNER. Now do you feel that the record before the Foreign Relations Committee and now being transmitted to the Senate has any statements that conflict with what you have said?

Ambassador LEHMAN. I will check it to make sure that there is nothing in there that is in conflict——

Senator WARNER. You do that, and if there is, then you supplement your reply to my question with respect to your testimony.

Ambassador LEHMAN. I will be glad to do that, Senator Warner.

Senator WARNER. How does the administration intend to comply with Article 1, paragraph 3 of the TTBT which states that "the parties shall continue the negotiations with a view toward achieving a solution to the problem of the cessation of all underground nuclear tests"?

Ambassador LEHMAN. Senator Warner, since we are proceeding with our approach to nuclear testing in a manner consistent with all of our international obligations, we believe that the approach we are undertaking, the step-by-step approach which has involved most recently the bilateral negotiations with the Soviet Union, is the most appropriate way to proceed.

It is not though, let me say, that we have a specific legal obligation to go negotiate a CTB per se. It is rather that we are guided by these general objectives in the context of the national security of the United States and its allies and it is in that context that we have developed a specific approach, the step-by-step approach.

Senator WARNER. Does the administration agree that the United States "shares a special responsibility with the Soviet Union to continue the bilateral nuclear testing talks to achieve further limitations on nuclear testing, including the achievement of a verifiable comprehensive, test ban," as stated in the resolution of ratification?

Ambassador LEHMAN. Senator Warner, since we and the Soviet Union are the major nuclear powers in the world, obviously we have chosen through our bilateral negotiations in the nuclear testing talks (for which Ambassador Robinson represents the United States), a bilateral approach to these negotiations.

Senator WARNER. Is there anything in the record covering all three of these inquiries again that would give rise to any concern that requires further clarification in this hearing?

Ambassador LEHMAN. I will have to examine the record in detail to make sure that I give you a correct answer to that. But let me simply say that it is our understanding that the intent of the declaration is to be consistent with the administration's policy.

[The information follows:]

We understand that it is the intent of the second declaration to be consistent with the President's policy.

President Bush, in his January 1990 statement, affirmed his commitment to a step-by-step process to further limits on nuclear testing. The President is just as convinced, however, that, so long as nuclear weapons continue to play a critical role in U.S. national security strategy, the United States must conduct nuclear tests to ensure the credibility of our forces.

Senator WARNER. That is the key: That is your "understanding". Are there those here in the Senate, for example, that may have a different understanding, and is there anything in the record to justify their deriving that conclusion?

Ambassador LEHMAN. All I can say is that we have described our approach, and in fact, I have done so in general terms in response to your questions and the others here today, and we have done so with the Senate Foreign Relations Committee.

Senator WARNER. And the administration witnesses before that committee were consistent?

Ambassador LEHMAN. I believe so.

Senator WARNER. You believe so?

Ambassador LEHMAN. I think we have gone over the record now. So we have gone over the record of what has been said thus far and we believe that we are internally consistent.

Senator WARNER. Do you agree with that, Ambassador Robinson?

Ambassador ROBINSON. Yes, Senator Warner, we, in response to the request about the authoritativeness of administration witnesses, did review all of the record that we have presented with respect to the threshold test ban and peaceful nuclear explosions treaties, and do assert that they are authoritative and we believe that they are consistent, yes, sir.

Senator WARNER. Not in conflict with the present and future policies of this administration, as far as you know?

Ambassador ROBINSON. No. I would say, if anything, the resolution is only an incomplete statement of our policy. I am sorry Senator Wirth is not here, but I think probably at the root of the confusion of these matters is the confusion that is often taken between "means and ends."

Nuclear testing is a "means" of assuring that nuclear weapons are operable and that you can have confidence in their value as a deterrent. Nuclear weapons themselves are "means" to secure peace and stability. Neither is an "end" in themselves.

Much of the language, taken out of context from the earlier treaty declarations, would ascribe that we have an "end" goal in sight to end nuclear testing. It does not quite fit to say that we have an "end goal" to continue nuclear testing. We only want to continue nuclear testing so long as it is necessary as "means" for ensuring national security.

Senator WARNER. Let me get one more question in under my time allocation here, and I want to tighten up the subject. It is an important one brought up by Senator Lott.

Ambassador Lehman, we understand the administration supports the five safeguards, including the Foreign Relations Committee-recommended resolution, of the TTBT. The question is, will the administration use the higher standard, that is, the six safeguards originally proposed in 1987, for policy and planning purposes, or does the administration plan to use the five safeguards endorsed by the Foreign Relations Committee as the basis for their safeguard program?

In other words, these somewhat water down the original safeguard, as I read them and study them.

Ambassador LEHMAN. Senator Warner, my understanding is that we have agreed to the five safeguards that are in fact contained in the Senate Foreign Relations Committee declaration.

Senator WARNER. Was that a purposeful concession on the part of the administration?

Ambassador LEHMAN. It was indeed.

Senator WARNER. It was indeed? All right, thank you.

Senator GORE. Welcome, good to see you all. When was the last Soviet test?

Ambassador LEHMAN. Of what size——

Senator GORE. Underground explosion.

Ambassador LEHMAN. Let me check if I may to find the exact date.

Senator GORE. All right, of any size, that is right.

Ambassador LEHMAN. The last Soviet underground nuclear explosion, announced by the Soviet Union, occurred on October 19, 1989.

Senator GORE. So the last Soviet underground explosion, nuclear explosion of any kind was October of 1989?

Ambassador LEHMAN. That is the information I have.

Senator GORE. Is the principal reason they have not tested for a year basically, environmental protests?

Ambassador LEHMAN. Senator, let me say that in our discussions with the Soviet Union they have certainly highlighted the political aspects of their problem.

Senator GORE. Is it true that the group in the Soviet Union named Nevada threatened a general strike in all of Kazakhstan, including the space center of Tyuratam, if there was one more test?

Ambassador LEHMAN. I would like to answer the specifics of that question for the record, but clearly there have been proposals within Kazakhstan for strikes and things of that nature, major protests, yes.

Senator GORE. My information is that that is the principal reason why they have halted nuclear testing, and that their military people express some uncertainty about whether they can start it back up again. They announced an intention to move the testing program to Novaya Zemlya, which had in the past been used occasionally been used for tests, depending on the season.

Then the next day in the Supreme Soviet a representative from Novaya Zemlya says no, you are not, and they announced a reconsideration of plans to conduct tests there.

Does that conform with your understanding of the situation?

Ambassador ROBINSON. In the two protocols that were negotiated, the Soviet Union for their part declared two test sites and the

boundaries of those test sites, so I think at this point we can only assume that they have a location to test. But I know it is under consideration as to what emphasis they should give to the Semipalatinsk test site.

I am unaware of a final decision being made by the Soviet Government, Senator.

Senator GORE. Things are sure changing over there, are they not?

Ambassador ROBINSON. But Senator, let me comment on that, things are changing primarily as a result, not only of environmental protests, but in the case of Soviet testing, because of real environmental problems. That is a difference that one should not lose sight of between the U.S. program and the Soviet testing program.

From time to time, in arms control the Soviets tend to try to make a virtue out of what is a necessity. And they say this about why they have not tested. Certainly their military has suggested they require testing. I am not sure how they have decided just how they will carry it out.

Senator GORE. We have occasionally been known to make virtue of necessities also, but I would agree with your statement. I am familiar with the environmental problems that have been accompanying the program.

Is there, Ambassador Lehman, currently an administration view as to the minimum yield, or the minimum number of tests per year, that would be consistent with a viable nuclear test program?

Ambassador LEHMAN. Senator, if you are referring to—as a negotiated proposal for the follow-on next step, the answer is no, there is not yet a proposed negotiating position.

Senator GORE. What is your view about the minimum yield?

Ambassador LEHMAN. Senator, I would like to continue to study this issue very carefully. Clearly, what we have learned is that nuclear weapons are very complex, and the more we look at this question, the more you see that each of these approaches that have been recommended—for example, reduced thresholds or quotas—have certain disadvantages, as well as the advantages that are put forward.

So I would rather not assess a particular number, but rest assured we are really working on this issue.

Senator GORE. Do the safeguards my colleague from Virginia referred to earlier by their very nature rule out a comprehensive test ban?

Ambassador LEHMAN. As the next step?

Senator GORE. No, for as long as we follow the safeguards.

Ambassador LEHMAN. Well, clearly, among the safeguards is a nuclear testing program, and so in that sense we would say yes, that one would want to continue the safeguards as long as they are required. But among the safeguards is a testing program.

Senator GORE. Back to the Soviet Union for a minute. Is there as yet any sign of an independent point of view on these treaties or arms control generally in the Supreme Soviet, and are you taking that point of view into account in your analysis of the situation?

Ambassador LEHMAN. Senator, let me say I just got back from Moscow last Thursday night—actually, Friday morning—and each time I go I am more and more amazed by political developments

there. I think the most common source of my amazement is at the political independence that gets expressed by new faces and new voices on the scene.

We obviously are watching very closely what is going on in the Soviet Union. Clearly, the political developments there have helped us achieve many of our important arms control objectives. I mean, one need not look only at verification, as we discussed with Senator Lott, but look at the developments in Europe, and the amazing change in the military situation there, which really could not have been achieved without the types of developments you are talking about in the Soviet Union.

With respect to nuclear testing, let me say we do look at what is going on in the Soviet Union, but primarily we have to be driven by our own national security requirements.

Senator GORE. That is not really my question. I just came back from Moscow two Thursdays ago and Geneva, meeting with our people there. Some of the interlocutors on arms control that I have talked with over the last several years, a few of them now are beginning to openly identify with the Russian Republic, and others are saying that the Supreme Soviet within the all-union Government has developed an independent point of view.

I do not know if I can have a couple more minutes, Mr. Chairman. My time is up. I will just finish this up real quickly, then.

My question is about the process for ratification over there. I am sure these will be ratified with no problem over there, but they are the first to go through that process in the new era, and so I am wondering, have you analyzed that?

Do you see an independent point of view in the Supreme Soviet? Does the Russian Republic have to be taken into account? Will this agreement be binding on the Government of the Russian Republic? What about those questions?

Senator WARNER. Mr. Chairman, I would add they are very important questions. Our group found the same thing, senator. When we were over there we saw both Yeltsin and Gorbachev, and Yeltsin made it very clear that from now on he is going to have a major voice. He said 90 percent of the arms are made in the Russian Republic, and he is going to decide what is exported and imported and what is going to be made.

Senator GORE. And they will shortly all be stationed in the Russian Republic.

Ambassador ROBINSON. Senator, in the Geneva negotiations, first of all, the Soviets who are empowered to negotiate for their Government jealously guarded their right to carry out a nuclear testing program, and that is reflected in the documents.

Now, at one point in the negotiations the Soviets took issue with a statement we had proposed "that these protocols apply within the territories," and we could not understand why they would object that "this applies within the territory." They suggested that they could not be sure that the Soviet Union would always be defined in the same way in which it is today.

For the purposes of these treaties and protocols we have made the agreement with the "Union of Soviet Socialist Republics." Right now there is no way the treaties could apply separately, and we are requiring that "union" to provide the rights granted by

these treaties and protocols and to assume the obligations of the treaties on behalf of the entire Soviet Government and not just a part.

Ambassador LEHMAN. Senator, these are good questions and they are very important ones. As you are also well aware, they are very sensitive ones. For example, clearly with respect to the Baltic States, the U.S. view and the Soviet view are not exactly identical. With respect to the legal questions that you raise, there is a long history.

As you are aware, for example, within the General Assembly of the United Nations you have Byelorussia and the Ukraine present there, but there is a history to that. If you would like, I would be prepared to provide you some comment on the legal aspects for the record.

On the political aspects, let me say that simply we are all watching with great interest to see what in fact will happen. As you know, even while we were there last week, there was speculation over the change of the name of the union. Things are moving very rapidly.

Senator GORE. Well, my time has expired. I thank you, and I would like to see that for the record. This ratification over there could be an early look, or test, of the all-union framework.

Thank you, Mr. Chairman.

[The information follows:]

ADDITION TO THE STATEMENT OF AMBASSADOR RONALD F. LEHMAN II

As far as safeguards are concerned, the SFRC resolution is acceptable. As a matter of policy, as stated by the President in his letter to the Senate of June 28, the administration will pursue all safeguards in an effective manner.

As I stated at the SASC hearing, the preambular language of the Limited Test Ban Treaty (LTBT) and the Nuclear Nonproliferation Treaty (NPT) does not commit the United States to seek the discontinuance of all test explosions of nuclear weapons for all time. However, the language in the SFRC resolution of ratification is consistent with the administration's stated long-term objective of a Comprehensive Test Ban (CTB), an objective for a time when we do not need to depend on nuclear deterrence to ensure international security and stability, and when we have achieved broad, deep, and effectively verifiable arms reductions, substantially improved verification capabilities, expanded confidence building measures, and greater balance in conventional forces. In this sense, the administration understands that it is the intent of the second declaration of the SFRC resolution of ratification to be consistent with the President's policy.

You also asked about Article I, paragraph 3 of the TTBT, which states that "the parties shall continue the negotiations with a view toward achieving a solution of the problem of the cessation of all underground nuclear tests." As I stated at the hearing and in my prepared statement, the administration has a step-by-step approach to further limits on nuclear testing. The United states is guided by general objectives such as pursuing peace and security and seeking stabilizing arms control agreements which promote the national security of the United States and its allies. This is the context in which we have developed the step-by-step approach.

You also asked whether the United States shares a special responsibility with the Soviet Union to continue the bilateral nuclear testing talks to achieve further limitations on nuclear testing, including the achievement of a verifiable comprehensive test ban. As I stated at the hearing, since the United States and the Soviet Union are the world's major nuclear powers, obviously we have focused on a bilateral approach to negotiations on this subject. We take the term, "special responsibility" in the context of the national security of the United States and in a manner consistent with the conditions for progress that I cited above.

Chairman NUNN. Thank you, Senator Gore. Senator Warner?

Senator WARNER. Ambassador Lehman, I am going to come back to my final question. I am still not satisfied or clear in my own mind. You had a set of standards in 1987. You have now got a set of standards incorporated in these documents which you put before the Senate.

Is the administration now shifting itself to a somewhat weaker or minimum standard as set in these documents, or despite these documents, cannot the administration continue to adopt the tougher standards as used in the 1987 framework?

Ambassador LEHMAN. Let me say, Senator, we do not believe that——

Senator WARNER. What?

Ambassador LEHMAN. The administration does not believe that what we are talking about here is a changing of the standards. We believe that we can do what we wanted to do under our original safeguards program.

Let me give you an example. The sixth safeguard, the one that is not in the resolution, has to do with activities that the administration would, of course, always be doing, and so we did not insist that it would be there. In fact, frankly, it is something that we would in fact do for ourselves.

Senator WARNER. That is Safeguard F?

Ambassador LEHMAN. Safeguard F. I hesitate to take your time, but if I read it, you will see why any administration would feel very strongly this way, that this is not something we need to be told to do. It is something we are going to do.

Senator WARNER. Very well. That is clear. Thank you.

Chairman NUNN. Let me ask one final question for myself, Ambassador Lehman.

The TTBT protocol assigns the U.S.-Soviet Nuclear Risk Reduction Centers the task of providing the notifications required under this agreement, is that right?

Ambassador LEHMAN. Yes, sir.

Chairman NUNN. I believe this is certainly a role the Centers can undertake and do not object to it from that point of view, but I am getting more and more concerned as time goes by that the original purpose as envisioned by Senator Warner and myself, and I believe many others who sponsored that, including Senators and House members also, has not been fulfilled by the risk reduction centers. They are being given more and more technical assignments, and of course that is beginning to occupy almost all of their time.

I do not know whether you are familiar with the provision we put in this year's defense authorization bill, but we put forth there the expanded roles that we envision for the nuclear risk reduction centers and one purpose was serving as the locus for our discussions between the two nations—the Soviet Union and the United States—on responding to nuclear terrorism.

We also talked about providing a forum for discussions between the United States and the Soviet Union on restricting nuclear, chemical and missile proliferation, which is I think a rather timely subject, serving as a meeting place for high-level military discussions on nuclear doctrines, forces and activities and regional security concerns; we also pointed out installation of post-launch destruct

mechanism on all ICBM's and submarine-launched ballistic missiles.

That is a separate subject, but we hoped that something like that would begin to at least be explored and discussed. It is premature to say you should do it on all of them.

But you have been very much a part of this whole background. Do you share my concern that we need to think a little broader in terms of what the risk reduction centers are doing, and not have them simply bogged down in technical transmissions with no real discussion of what I think is an increasingly important subject in light of developments in the Middle East, and that is the threat of terrorism, the threat of Third World use of nuclear weapons, missile technology, chemical weapons, biological weapons and so forth?

It seems to me we have got a real opportunity to take this mechanism that already exists and turn it into a true forum for that kind of meaningful discussion. Would you comment on that?

Ambassador LEHMAN. Well, Senator, we have shared your interest in some of these broader applications of such centers, and I think it would be wrong to think that just because these other duties are being assigned to the Nuclear Risk Reduction Center that that means we have ruled out the possibility of broader applications for such centers.

Chairman NUNN. You said a couple of negatives there. Do you want to rephrase that?

Admiral LEHMAN. What I am saying is, if you look at what we are doing in the crisis prevention centers in the European context in CFE, in fact, we have begun to sit down with our allies and even with the East and begin to look at such applications in that, if I can call it that, risk reduction body there.

A number of the issues you have raised, such as terrorism, we have been looking at mechanisms and ways to consult. In some cases the Nuclear Risk Reduction Center has not been, in the end, the vehicle we have chosen. That is often been because of the nature of the activity or the nature of our negotiations with, say, the Soviet Union or others.

But I would be glad to sit down with you or with your staff and go over these ideas, and talk about which ones we think have promise and——

Chairman NUNN. I think it would be good to do that. I do not mean to say that if the Secretary of State and his counterpart in the Soviet Union are talking about conceptual ways of beginning to work on nuclear proliferation together or chemical or biological together, that you have to have them go sit in the nuclear risk reduction centers.

I am not saying that at all. I know there are going to be other forums, but this was created for the purpose of giving a more or less permanent home for lower level discussions once the conceptual part of it had been framed, and I am hoping that we do not bog down in the risk reduction areas with so much technical issues that then we turn around and find we do not have a mechanism for carrying out some of these more detailed discussions on cooperative concepts.

Ambassador LEHMAN. We agree, Mr. Chairman. Let me give you one example though, to kind of put it in perspective. One of the

ideas that has been floated is that the nuclear risk reduction center might be a good place to have discussions of military doctrine.

But as you know, our allies and the Eastern Europeans have been very much interested in having those discussions in the CFE context with more nations involved. So obviously, in this climate with the developments in Europe, we had to put high priority on addressing that question, and in fact, you know, we had the very historic meeting in Vienna earlier this year when Gen. Colin Powell went there, and it looks like it is going to be an ongoing process and it may well become involved with the crisis prevention center concept in Vienna.

Chairman NUNN. I think that crisis prevention is a very good concept in CFE. I have no objection to that at all, I think it is welcomed and very much along the lines that we are talking about here.

Interestingly enough, the original concept of the nuclear risk reduction came from the working agreement, even in the worst part of the Cold War, that was taking place between the Allied Powers and also the Soviet Union over in Berlin.

Ambassador LEHMAN. That is right.

Chairman NUNN. Trying to avoid problems there by getting out in front of them and communicating and so forth and so on, and that was when relations were at their worst, so it is circular in terms of possibly going back to the European theater.

But I do hope that we can sit down and talk about it, and when you get ready, give us a call.

Ambassador LEHMAN. I am ready.

Chairman NUNN. Okay. We will do it. Senator Lott?

Senator LOTT. Just one last question, Mr. Chairman. Ambassador Robinson, while the protocols prohibit unilateral release of information on among other things, activities of the other party, what is going to be the administration's position with respect to the release of information to Congress or to the public when there is a suspected or confirmed violation of the treaties or protocols?

Ambassador ROBINSON. Senator Lott, the prohibition is only on public release. So we will share all of the information fully with the Senate, as we have done in the past. The information, should we find there is a violation on the part of the Soviets, that information will be the result of analysis and conclusions that we will reach on our side. That information can be shared publicly.

Where we are prohibited from doing is the sharing of the raw data, through the provision, unless the other side agrees.

Senator LOTT. Thank you, Mr. Chairman.

Chairman NUNN. I thank both of you for being here today. We have——

Senator GORE. Mr. Chairman, could I ask just another brief question or two?

Chairman NUNN. Yes. Our only problem is that we have our next panel and one of our witnesses there has to catch a plane at 4 o'clock. So if we could wrap it up as soon as possible.

Senator GORE. Can you think of seeking threshold limits to the UK, French or even PRC testing programs, do we have any plans to engage in a dialogue with them about these limits?

Ambassador LEHMAN. We have no plans to engage in a dialogue on that question. Obviously, we talk to them about what we are doing and what we have been negotiating with the Soviet Union, but our focus has been on the Soviet Union.

Obviously, when one is talking about the long-term CTB, one envisions a very different world than the one we have today. We have seen no need to bring them into the process at this time, but we have obviously talked to them and consulted with them.

Senator GORE. Thank you, Mr. Chairman.

Chairman NUNN. Senator Gore, if you have another one, I do not want to put you off.

Senator GORE. That is all right.

Chairman NUNN. Okay. Mr. Lehman and Mr. Robinson, we appreciate both of you being here very much.

Our next panel is Dr. Robert Barker, Assistant to the Secretary of Defense, Atomic Energy; Mr. Victor Alessi, Director, Office of Arms Control, Department of Energy; and Rear Admiral Thomas Fox, U.S. Navy, Deputy Director for International Negotiations, Joint Chiefs of Staff.

I believe that Dr. Barker has the shortest time fuse here, is that correct?

Dr. BARKER. That is correct, Senator. Although I do not want to be up here under false impressions. I do have to leave at 4 o'clock. The plane does not leave at 4 o'clock.

Chairman NUNN. What time do you need to leave here then?

Dr. BARKER. I have to leave here at 4 o'clock.

Chairman NUNN. You need to leave here at 4 o'clock?

Dr. BARKER. Yes.

Chairman NUNN. Okay. Why do we not ask you to lead off and then in light of your schedule if there are particular questions to you, we will go ahead with those questions and then come back to the other two witnesses.

STATEMENT OF DR. ROBERT B. BARKER, ASSISTANT TO THE SECRETARY OF DEFENSE, ATOMIC ENERGY

Dr. BARKER. I appreciate your indulgence. I apologize for my schedule conflict. I would like to ask one further indulgence and that is, if there are questions that arise after I depart, I wou'd appreciate the opportunity to respond to those for the record, if it is appropriate.

Chairman NUNN. That will be certainly appropriate.

Dr. BARKER. Under the circumstances, allow me to very briefly summarize my statement. I am very pleased to have the opportunity to present the views of the Department of Defense on the subject of the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty.

It is a particular pleasure for me to be here, since in 1986 when I was at the Arms Control and Disarmament Agency, I was asked to head the U.S. team that engaged in the first technical discussions with the Soviets on nuclear test verification mechanisms. I also, in conjunction with the Nuclear testing talks, led the first U.S. delegation to the Soviet test site in Semipalatinsk in 1988. I then

turned over the head of the nuclear testing delegation to Ambassador Robinson, from whom you have just heard.

So, I was present in the early days when we had a very difficult task of convincing the Soviets that we had to meet a verification mechanism which would truly meet the standards of effective verification for that treaty, a verification mechanism which was capable of removing the uncertainty and hopefully would eliminate the accusations that had flown back and forth between the two countries about noncompliance with the Threshold Test Ban Treaty.

I have testified before this committee before, in 1987, that the Department of Defense fully supports the text of the Threshold Test Ban Treaty and Peaceful Nuclear Explosions Treaty, provided that we would be able to negotiate effective verification measures for those treaties with the Soviet Union. I believe we have now met that objective.

The TTBT and the PNET protocols will allow us to effectively verify whether the Soviet Union is observing the 150-kiloton limit on its underground tests, provided that the U.S. fully implements our treaty rights to conduct hydrodynamic yield measurements.

I wish to point out that the Department of Defense elements will play a very major role in implementing those verification measurements. The Defense Advanced Research Projects Agency will play a key role as far as implementing the seismic verification provisions are concerned. The Defense Nuclear Agency will play a critical role in implementing hydrodynamic measurements, particularly those applied to tunnel-type experiments and other more complex measurements. The On-Site Inspection Agency will have the primary responsibility for procuring all hardware and services associated with the implementation of treaty rights and will be the lead agency for the logistics element of U.S. operations in the Soviet Union and in playing host to the Soviets when they are in the United States, including getting them to the Nevada test site.

The safeguards have gotten some attention with the previous speakers. What I would like to do, in view of my limited amount of time, and because previous speakers have covered the verification measures and the treaty in particular, is focus on the safeguards and very particularly on Safeguard A, the safeguard that calls for a continuing and effective nuclear test program, one that can meet this country's security needs.

I think the record on these hearings should indicate that indeed we do see a continuing need for nuclear testing in this country, and in fact, that need was well spelled out in President Bush's January 1990 statement of policy on nuclear testing. That is a long statement and I do not even want to paraphrase it at this point for fear of losing the nuances, but it is in my statement for the record.

We are asked many times, "Why do you need to continue testing?", and I want to take a few moments to iterate the reasons. First, we need to test in order to be able to examine weapons that are currently in the stockpile to determine if the deleterious affects of aging have rendered them less useful.

We also need to test in order to incorporate the most modern of safety and security features into new weapons. Certainly this issue of safety has gained a great deal of attention lately, and I am very confident that our nuclear weapons laboratories are capable of

bringing even newer inventions to the fore that can make sure that whatever weapons we must have will be as safe and secure as this Nation deserves.

Third, we must face the fact that the deterrence is not static. Changes in the threat, changes in the target base and changes in our own strategies mandate changes in our nuclear weapons systems. As with any nonnuclear development program, nuclear weapons testing is essential to insure that new weapons work and meet the new requirements as they evolve.

In this regard, we have three weapons systems currently reaching a mature stage of design that can only come to fruition with a robust testing program. Those are:

The SRAM-T, the air-to-surface missile for tactical application which will help us to reduce the numbers of laydown bombs in the current inventory; and

The SRAM II missile and the B-90 bombs, which are replacements for weapons in the current inventory weapons which, most importantly, will meet the most modern of safety and security standards. We need a robust testing program to maintain these critical components of our deterrent force.

Of course, the fourth major reason for testing is to avoid technological surprise.

Now, I am speaking for the Department of Defense, and everything I have just told you about why nuclear testing is necessary are lessons that have been taught to us by our nuclear weapons laboratories. As recently as 2 months ago in testimony, the Lawrence Livermore National Laboratory Director John Nuckolls told the Senate Foreign Relations Committee, "Revolutionary advances in supercomputers have not eliminated the need for nuclear tests. Our ongoing nuclear test program continues to teach us that our understanding is incomplete and that our expectations are frequently wrong."

Dr. Sigfried Hecker, the Director of the Los Alamos Laboratory, said, "The need for nuclear testing is fundamentally no different from the need for testing any other complex system. The physical phenomena that occur in nuclear fission and thermonuclear weapons are so complex and insufficiently understood that even today we cannot design nuclear weapons from first principles or by computers alone."

Another question that arises is how often we need to test. The laboratory directors have written a letter to the Secretary of Energy, Jim Watkins, and that letter, dated June 6, 1990, was incorporated in the June 26 Congressional Record. In that statement, the lab directors say, "At the current level of testing we can longer maintain both the level of nuclear competence and the forward-looking program that meets the Nation's needs in safety, security, effectiveness, stockpile reliability and avoidance of technological surprise."

It is for the set of reasons that I have just listed that the administration believes Safeguard A is so critical. We believe that the foreseeable national security requirements of this country can be met under the limitations of the 150-kiloton threshold provided we test to the limits that we are permitted under that treaty. I have

tried to give you a picture of the reason for our current requirements.

Two successive administrations have made a commitment to step-by-step reductions in nuclear testing provided that any subsequent step is consistent with national security requirements. I think every department of the government, the Defense Department, the State Department, the Department of Energy, are very, very well aware of that commitment and, indeed, are evaluating and investigating to try to find a subsequent limitation beyond the 150-kiloton threshold that is compatible with our national security.

I am not able to tell you when such a further limitation will be identified, but I can assure you that every effort is being made to fulfill the commitment made by the President of the United States.

Let me just conclude by saying that the Department of Defense has evaluated the risks associated with ratification of the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty and their accompanying protocols and conclude that they are acceptable in the context of full U.S. Government support for the safeguards.

In particular, I have emphasized the importance of Safeguard A, the U.S. nuclear test program restored and maintained at a healthy level. Under those circumstances, we believe we can with nuclear tests up to 150 kilotons meet all identified requirements for new high-yield weapons which we can now foresee, maintain the current nuclear stockpile, modernize the stockpile to meet current and future standards for safety and security of nuclear weapons; and respond to future threats to our national security.

Thank you.

[The prepared statement of Dr. Barker follows:]

STATEMENT OF HON. ROBERT B. BARKER
ASSISTANT TO THE SECRETARY OF DEFENSE (ATOMIC ENERGY)

Mr. Chairman, I am pleased to have this opportunity to present the views of the Department of Defense on the subject of the Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosions Treaty (PNET).

In my testimony before this committee in January of 1987, I indicated that the Department of Defense fully supported the President's request for the Senate's advice and consent to the ratification of the TTBT and the PNET, subject to the essential condition that the President should not proceed with ratification until the U.S. and the Soviet Union had concluded additional protocols or agreements which would provide for effective verification of the treaties, including the right of each side to conduct accurate, direct, hydrodynamic yield measurements at the site of all nuclear detonations conducted by the other side which otherwise might appear to have yields in excess of 150 kilotons. These conditions have now been met; effective verification measures have been negotiated.

The reason for the importance of verification is that the limitations on technology imposed by the TTBT and the PNET are not cost free. The potential military advantages to one side of testing above the 150-kiloton limit imposed by these treaties while the other side complies with the treaties is substantial. For example, if the Soviet Union were faced with a reliability problem in a major weapon system, they might be highly motivated to test above 150 kilotons. If the United States, faced with the same dilemma, continued to comply with the treaty limit, a dangerous asymmetry in confidence could develop. The ability to verify compliance by the Soviet Union is therefore essential to the security of the United States.

I had the privilege of heading the U.S. delegation to the U.S.-U.S.S.R. Nuclear Testing Experts Meetings in Geneva in 1986-87, and to the opening rounds of the Nuclear Testing Talks that began in November 1987. Since then, I have followed closely the

negotiations which included the successful Joint Verification Experiment nuclear tests held in the United States and the Soviet Union in 1988. These successful deliberations resulted in the Verification Protocols signed at the Summit. I believe that the new TTBT and PNET Protocols will allow us to effectively verify whether the Soviet Union is observing the 150 kiloton limit on its underground nuclear tests provided that the U.S. fully implements our treaty rights to conduct hydrodynamic yield measurements. The Department of Defense therefore supports ratification of the TTBT and the PNET and their new verification Protocols, in the context of full USG support for the Safeguards submitted as part of the ratification package in January 1987, and reaffirmed by President Bush in his letter of transmittal, and in the context of full implementation of our rights to conduct hydrodynamic yield measurements.

Since Ambassadors Lehman and Robinson have discussed in some detail the verification provisions of these treaties, it would be useful for me to speak at some length about the importance of the first Safeguard, namely, continued underground nuclear testing. All of the Safeguards are important. Safeguard A -- maintaining a vigorous underground nuclear testing program -- is especially critical to national security. We must be able to certify the military worthiness of our nuclear stockpile and to develop new weapons consistent with nuclear strategies that will evolve in the post-cold war era. The specter of nuclear weapons proliferating throughout belligerent states makes it essential that the United States maintain a flexible nuclear weapons program that can deter a threat from any quarter.
The Joint Chiefs of Staff have taken the position, with which I fully agree, that nuclear testing is indispensable to a credible and effective nuclear deterrent.

Before proceeding, I would like to quickly review the United States nuclear testing requirements.

First, testing provides the capability to examine weapons in the stockpile to determine if deleterious effects of aging have

rendered them incapable of operating. Testing thus contributes to the credibility of our existing stockpile.

Second, we have a moral obligation to incorporate the latest safety and security features into our new weapons. This point has been made manifest in the recent open discussion about the safety of some components of the stockpile. While I wish to emphasize that the stockpile has been designed and is maintained to the utmost standards of safety and reliability, with time these standards may and do change. As world tensions ease, it is natural that the safety and security of nuclear weapons take on even greater importance. Nuclear testing has played and will continue to play a key role in identifying and establishing further enhancements to nuclear weapon safety. New weapons must incorporate the state-of-the-art in weapon safety. In addition, we need to incorporate the most modern safety features into older weapons to enhance their safety and security. Safety enhancement requires nuclear testing.

Third, deterrence is not static. Changes in the threat, changes in the target base, and changes in our own strategies mandate changes in our nuclear weapons. As with any non-nuclear development program, nuclear weapons testing is essential to ensure the weapons work and meet the requirements -- testing is an essential, unavoidable part of any successful development program. In this regard there are three nuclear weapons programs currently reaching a mature stage of design which must be supported by robust testing: the SRAM-T, the SRAM II, and the B90. The Department of Defense vigorously supports the SRAM-T program because it extends the range and flexibility of NATO aircraft. In doing so, the SRAM-T will allow us to make significant net reductions in the theater stockpile; such reductions cannot be made with confidence in the absence of a thorough testing program. Similarly, the SRAM II and B90 represent necessary modernization to retain a fully credible deterrent and incorporate enhanced safety and security features.

The fourth major reason for testing is that the United States cannot allow itself to be put in a position of disadvantage due to technological surprise. The level of nuclear expertise required to avoid technological surprise can only be sustained by a healthy nuclear testing program.

The Directors of the Nuclear Weapons Laboratories speak with one voice in continuing to stress the importance of underground testing to refine their understanding of fundamental physical processes. As recently as two months ago Lawrence Livermore National Laboratory Director John Nuckolls told the Senate Foreign Relations Committee: "Revolutionary advances in supercomputers have not eliminated the need for nuclear tests. Our ongoing nuclear test program continues to teach us that our understanding is incomplete and that our expectations are frequently wrong. We are still being surprised by the results of a significant number of our nuclear tests, sometimes to the degree that we modify stockpiled weapons." His sentiments were echoed by Dr. Siegfried Hecker of Los Alamos who cautioned: "The need for nuclear testing is fundamentally no different from the need for testing any other complex system. The physical phenomena that occur in nuclear fission and thermonuclear weapons are so complex and insufficiently understood that even today we cannot design weapons from first principles or by computers alone."

Similarly, there exists a continuing requirement for knowing what the detailed effects of nuclear weapons are. Such knowledge allows development of systems which, through their survivability, lead to enhanced deterrence and a decreased likelihood of use.

Additional testing is required to determine whether any further limitation on nuclear testing could be compatible with the maintenance of a credible nuclear deterrent. It is important that any future reduction in testing of existing and new weapons not change development and reliability standards to the detriment of national security interests.

Since the decision to comply with the 150-kiloton treaty limit, the United States has been placed in the position of certifying that our newest weapons, as well as existing high yield weapons, will still work as intended based not upon validation by a full-yield test, but based upon the expert judgement of our weapon designers -- many of whom have never been associated with a full-yield test! This problem will only become worse over time as the number of experienced weapon designers decreases due to attrition.

The current situation, in which budgetary considerations have driven the rate of U.S. nuclear testing to the lowest rate since 1954, with the exception of the 1958-1961 moratorium, is very disturbing. If we cannot depend on full-yield nuclear testing, then we must depend on the experienced judgement of weapon designers -- but many fear that the current rate of testing is insufficient to maintain confidence in that judgement. The Department of Defense is concerned by the statement of the Directors of the National Nuclear Weapons Laboratories, as expressed in their letter of June 6 1990 to Secretary of Energy James Watkins, as printed in the 26th June Congressional Record, that "at the current level of testing, we can no longer maintain both the level of nuclear competence and the forward looking program that meets the nation's needs in safety, security, effectiveness, stockpile reliability, and avoidance of technological surprise."

President Bush, in his U.S. Policy Statement on Nuclear Testing of January 9 1990, stated "Nuclear weapons will continue to play a critical role in U.S. national security strategy. So long as this is the case, the United States must be free to conduct nuclear tests to ensure the credibility of our forces. The United States has not identified any further limitations on nuclear testing beyond those contained in the TTBT that would be in the U.S. national security interest."

In conclusion, Mr. Chairman, we have evaluated the risks associated with ratification of the TTBT-PNET and their

accompanying protocols, and conclude that they are acceptable, in the context of full USG support for the Safeguards. In particular I have emphasized the importance of Safeguard A: a U.S. nuclear testing program restored and maintained at a healthy level. Under those circumstances we believe we can, with nuclear tests up to 150 kilotons, meet all identified requirements for new high-yield weapons which we can now foresee, maintain the current nuclear stockpile, modernize the stockpile to meet current and future standards for safety and security of nuclear weapons, and respond to future threats to our national security.

Chairman NUNN. Thank you, Dr. Barker.

Senator Gore, I want to open up questioning of Dr. Barker now. Then he will have to depart, and we will go to our other two witnesses.

I have just a couple for you, Dr. Barker. Does your department agree with the statement in President Bush's June 28 letter of transmission that the nuclear testing safeguards that were submitted to the Senate in 1987 "are essential to the national security and to the maintenance of a credible nuclear deterrent"?

Dr. BARKER. Yes.

Chairman NUNN. Does your department think that the overall concept of the safeguards as a critical element in the ratification package of these two treaties has been adequately upheld in the resolution of ratification reported by the Senate Foreign Relations Committee?

Dr. BARKER. It is my understanding that the safeguards language of the resolution of ratification was intended to capture the full intent of the administration's original position. If I am in error on that, I would appreciate being so informed; but if it is indeed intended to capture the full intent, then the answer is yes.

Chairman NUNN. I think you better examine it and then come back and tell us your view on that one, because that is why we are asking you.

Dr. BARKER. I would be happy to provide that.

[The information follows:]

ASSISTANT TO THE SECRETARY OF DEFENSE,
Washington, DC, September 18, 1990.

Hon. SAM NUNN,
Chairman, Committee on Armed Services,
U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: I write in further response to questions concerning the position of the Office of the Secretary of Defenses (OSD) on the nuclear testing safeguards contained in the TTBT-PNET resolution of ratification passed by the Committee on Foreign Relations.

0SD believes the language on safeguards in the resolution is acceptable. Although there are minor changes in wording from the safeguards submitted to the Senate in 1987 and endorsed by President Bush in his June 28 letter to the Senate, 0SD believes that the clear intent of the new language is not to change the meaning of, or to lessen the United States Government commitment to, the safeguards. These safeguards are essential to permit the United States to conduct those activities, includ-

ing a vigorous underground nuclear testing program, necessary to maintain a safe, effective, reliable, and survivable nuclear deterrent.

Sincerely,

ROBERT B. BARKER.

Chairman NUNN. We do not want to tell you the answer to our question.

Dr. BARKER. I can certainly read into the Senate's language everything that is in the original language of 1987.

Chairman NUNN. May I ask the other two witnesses the same question on that particular point? We will have to come back to it. Admiral Fox?

Admiral FOX. The Chiefs support the safeguards.

With regard to the second amendment, again I would have to take a look to see. I understand it does support the U.S. Government position or policy, but it has not been looked at.

Chairman NUNN. Could you look at it and give us an answer for the record as to the Chiefs?

Admiral FOX. Yes, sir.

[The information follows:]

The JCS understands that it is the intent of the second declaration to be consistent with the President's policy.

The JCS fully support the President's January 1990 statement which affirmed his commitment to a step-by-step process to further limits on nuclear testing. The President and the JCS are just as convinced, however, that so long as nuclear weapons continue to play a critical role in U.S. national security strategy, the United States must conduct nuclear tests to ensure the credibility of our forces.

Chairman NUNN. Dr. Alessi?

Dr. ALESSI. Our views are the same as the other two witnesses, and we will look into it and give you an answer for the record.

[The information follows:]

The Department of Energy (DOE) understands that it is the intent of the second declaration of the resolution of ratification to be consistent with the President's policy on further testing limitations.

The DOE supports the administration's commitment to a step-by-step process toward further nuclear testing limitations. This policy was reaffirmed in President Bush's January 1990 statement and General Scowcroft's July 1990 letter to Senator Levin. The DOE equally endorses the other aspect of this policy that, as long as we must rely on nuclear weapons for deterrence, the United States must continue to conduct nuclear tests.

Chairman NUNN. Okay.

Dr. Barker, is the Department of Defense ready to implement the safeguards in fiscal year 1991?

Dr. BARKER. We will implement the safeguards in 1991, Senator Nunn.

Chairman NUNN. Senator Gore.

Senator GORE. I will submit questions for the record, Mr. Chairman.

Chairman NUNN. Dr. Barker, what efforts are under way in the Defense Department to identify the next steps in this process?

Dr. BARKER. We are working within the interagency process. I noted earlier that the Departments of Defense, State and Energy are exploring alternatives. As an example, what will happen is that someone will suggest possible limitation, and an interagency group will evaluate it and attempt to determine what the impact is on U.S. national security.

To date, we have not succeeded in finding a next step which does not have adverse national security implications.

Chairman NUNN. Who is responsible for that organizationally to review the next steps?

Dr. BARKER. The National Security Council has a very strong interest in this matter and I believe is keeping abreast of the work being undertaken in this regard.

Chairman NUNN. Who in the Department of Defense?

Dr. BARKER. Certainly issues are raised to the level of the Secretary of Defense when specific issues are evaluated, specific proposals.

Chairman NUNN. Well, he is ultimately responsible for everything, but who is responsible for originating the thinking and proposing it and letting it bubble up in the Department of Defense? Is it you, or is it your group?

Dr. BARKER. The work of evaluation of national security implications is done under the auspices of the Under Secretary of Defense for Policy, Paul Wolfowitz, and anyone is eligible to raise suggestions as to things that might be evaluated.

Chairman NUNN. So you would have shared jurisdiction here?

Dr. BARKER. Certainly I would be very much involved in presenting my views on the national security implications of any limitation, and I am certainly eligible to nominate a potential limitation for consideration.

Chairman NUNN. Dr. Barker, the House Armed Services Committee adopted an amendment to its version of the 1991 defense authorization bill, which I believe is on the floor this week, that would transfer funding and program responsibility for the DARPA nuclear monitoring program from DARPA to the Air Force Geophysics Lab.

Are you familiar with that?

Dr. BARKER. I am, sir.

Chairman NUNN. What is the Defense Department's position on this amendment?

Dr. BARKER. We are opposed to that amendment, and letters have been submitted to the House Armed Services Committee specifically identifying our opposition.

Speaking personally as someone who is responsible for tracking the technical capability of the DARPA program, I am amazed at any proposed change in the current arrangement. I think the DARPA record has been an outstanding one, and I cannot think of a good technical reason to move that capability away from the Defense Advanced Research Projects Agency.

Chairman NUNN. If the amendment is enacted, what impact would it have on the U.S. Government's ability to conduct research into and use of seismic methods to effectively verify lower nuclear testing thresholds?

Dr. BARKER. I have a little difficulty answering the question, Senator, in the following regard: I believe that the Defense Advanced Research Projects Agency activity has been conducted with full utilization of the assets of the academic community, in full cooperation and full knowledge of all elements of the U.S. Government whose interests lie in the seismic verification area, and I can make

no statements as to why those same strengths would remain if the program were transferred.

Chairman NUNN. With regard to the question of the Foreign Relations Committee adopted safeguards, we may take up these treaties as early as Thursday this week in the Senate. I do not know how long the debate will last, but I would suggest that these questions relating to the safeguards and your review should take place as quickly as possible.

Dr. BARKER. It will be done.

Chairman NUNN. Dr. Barker, thank you very much and we will get you out of here a little bit early.

Dr. BARKER. Thank you, Senator Nunn. I very much appreciate it.

Chairman NUNN. Dr. Alessi, let's go to you.

STATEMENT OF DR. VICTOR E. ALESSI, DIRECTOR, OFFICE OF ARMS CONTROL, DEPARTMENT OF ENERGY

Dr. ALESSI. Thank you, Mr. Chairman. I also have prepared written testimony which I ask be included in the record with your indulgence.

Chairman NUNN. It will without objection.

Dr. ALESSI. And I would like to briefly summarize its content and in so doing, I think you will hear that I support most everything that Dr. Barker has said, in fact, all that he has said.

TTBT AND PNET RATIFICATION

Mr. Chairman and members of the committee, I welcome the opportunity to provide you with the Department of Energy's (DOE) views on the Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosions Treaty (PNET), including their protocols. In particular, I will explain the U.S. requirement to continue underground testing of our nuclear weapons and DOE's views on further testing restrictions.

First, let me state that the Department of Energy supports ratification of the treaties and their protocols. These protocols contain measures that will allow us to effectively verify that the Soviet Union is observing the 150-kiloton limit on its underground nuclear tests. The U.S. expertise for designing, building and testing nuclear weapons, as well as for stockpile certification, resides in DOE and its national laboratories.

DOE representatives along with representatives from our national laboratories participated in every step of the negotiations. They considered every verification issue and examined every proposal for technical feasibility, reasonableness, contribution to the verification objective, and for an unnecessarily negative impact on the United States testing program. We are convinced that the protocols can be implemented without harm to the integrity of the United States testing program.

NUCLEAR TESTING

In looking beyond the treaties themselves, the committee has asked me specifically to illuminate the reasons for nuclear testing. This administration remains convinced that nuclear testing is in-

dispensable to the maintenance of the credible nuclear deterrent that has kept the peace for over 40 years. Thus, so long as we depend on nuclear weapons for our national security, nuclear testing will be necessary to ensure the safety, security, reliability and performance of our nuclear stockpile.

We currently cannot simulate under laboratory conditions that exist during nuclear explosions. And thus, there is no present substitute for underground nuclear testing. Testing is the most expedient and often the only method for demonstrating the effectiveness of new safety features. Ensuring that our nuclear stockpile is reliable means ensuring that we maintain a cadre of experienced weapons designers and engineers. Nuclear testing is the tool that enables our weapons experts to make informed, competent decisions about the stockpile.

The dramatic geopolitical changes that are taking place in Europe create new opportunities regarding the future makeup of our nuclear force structure. As we begin to build down the Nation's nuclear arsenal through arms control, new and different weapons may well be needed to retain effectiveness and survivability of the deterrent at much lower force levels. Of course, any new weapon requires testing. In addition, as the number of weapons decreases, we become more vulnerable to technological surprise by a potential adversary.

This requirement to continue testing was reflected in the U.S. position at the testing talks. From the beginning of those negotiations, the sides agreed that the new protocols would not place any additional limitations on testing other than the 150-kiloton limit agreed to in 1974.

However, the TTBT protocol does contain features that will have operational implications for the test program at the Nevada test site. Among these features are the requirement to adhere to precisely defined schedules of notifications and data exchange and operations. And this will result in some loss of scheduling flexibility. There will also be an effect on the requirements to drill one or more satellite holes to accommodate the hydrodynamic yield measurement cables of the verifying side.

There will also be a requirement to accommodate an extended Soviet presence at the test site with the special security concerns that this presence will entail and the requirement to provide experienced personnel for conducting verification activities in the Soviet Union. Of course, the Soviets will have to live with these operational implications also.

Each of these requirements is manageable and the Department of Energy has begun to take each one of them into account in its plans. These requirements will set many new precedents in the field of nuclear testing, and it will certainly take some time to determine what the real impact of these provisions will be.

The Bush administration has repeatedly affirmed its commitment to a step-by-step approach to further limitations on nuclear testing. As we put into practice the new verification protocols, the United States will be ready to propose negotiations on possible further limitations that make sense from a national security standpoint, contribute to stability, and still guarantee a reliable, safe, and effective deterrent.

I understand that there is one concern over a statement attributed to a DOE report to Congress that next steps could not be considered for at least 10 years. There is confusion over the implication of this report because it has been interpreted to equate the reference to a 10-year program with the timetable for implementing the administration's next steps policy. In fact, the report refers to a 10-year program to better evaluate whether we can maintain the reliability, safety, and continued deterrent effect of the U.S. nuclear weapons stockpile in the event of a low yield or a comprehensive test ban.

For such cases, an improved capability to numerically model nuclear weapons is necessary. Recent and future tests will provide DOE with information and experience for improving this modeling. The goal is to allow us to depend less on actual nuclear test data and more on calculational models to maintain the U.S. deterrent.

This program does not undermine the effort to pursue next steps. Let me assure you that should further limitations that make sense from a national security standpoint be found, the Department of Energy's 10-year program can proceed in parallel with the negotiation and possible agreement, or other intermediate steps, on nuclear testing limitation.

In conclusion, I wish to emphasize that the Department of Energy is satisfied that the new features required by the protocol are acceptable in terms of the U.S. nuclear testing program. We believe they strike the proper balance between the requirements of the U.S. nuclear weapons testing program and the need to verify effectively Soviet compliance with the provisions of the TTBT and the PNET.

This concludes my statement.

[The prepared statement of Mr. Alessi follows:]

STATEMENT OF

Dr. Victor E. Alessi

Director, Office of Arms Control

DEPARTMENT OF ENERGY

INTRODUCTION

Mr. Chairman and members of the Committee, I welcome the opportunity to provide you with Department of Energy views on the verification Protocols to the Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosions Treaty (PNET), which were signed on June 1, 1990, by Presidents Bush and Gorbachev. In particular, I will explain the U.S. requirement to continue underground testing of our nuclear weapons and DOE's views on further testing restrictions.

First let me say that the U.S. expertise for designing, building and testing nuclear weapons resides in the DOE and its laboratories. In addition, DOE representatives, together with representatives from our national nuclear weapons laboratories, participated in each step of the negotiations. They considered every verification issue and examined every proposal for technical feasibility, reasonableness, contribution to the achievement of effective verification, and for any unnecessarily negative impact on the U.S. testing program. We are convinced that the Protocols can be implemented effectively in a manageable fashion even though there will be operational and financial impacts.

The Department of Energy supports ratification of the Treaties with their new Protocols. The TTBT and PNET Protocols contain measures that will allow us to verify effectively that the Soviet Union is observing the 150 kiloton constraint on its underground

nuclear tests. The United States, for its part, has honored these Treaties since 1976. The central feature of the new Protocols is the right to use routinely a direct, on-site hydrodynamic measurement method to determine yield for tests with planned yields greater than 50 kilotons. The U.S.- preferred system is known as CORRTEX (COntinuous Reflectometry for Radius versus Time EXperiment). The Soviets use a system for hydrodynamic yield measurements known as MIZ.

BACKGROUND

The Threshold Test Ban Treaty, limiting underground nuclear weapons tests to 150 kilotons, was signed in 1974. Since a state could evade the limit on nuclear tests by conducting a test away from a test site and characterizing it as a peaceful nuclear explosion (PNE), a companion treaty, called the PNET, was signed in 1976. It limits individual explosions for peaceful purposes to a yield of 150 kilotons. The two have never been ratified, in part because of concerns about verification.

In 1981, the U.S. decided that the existing TTBT and PNET verification measures were not sufficient to justify ratification of the Treaties. The problem with these measures was that they relied primarily on an uncalibrated teleseismic method of yield estimation, the accuracy of which was judged to be insufficient. Even more important, the seismic method is vulnerable to systematic errors that are exploitable by a potential violator. For example, tests could be conducted in cavities, deliberately "decoupling" the seismic shock wave from the source of the explosion, thereby reducing, for measurement purposes, the full force of the explosion.

U.S. policy therefore required that the Protocols provide for a more accurate means of determining yield. The U.S. proposed the

routine use of a direct, on-site measurement using the hydrodynamic yield method, and the Soviet Union eventually accepted this approach. Thus, we were able to conclude the negotiations successfully.

As I mentioned earlier, the U.S. system for hydrodynamic measurement of yield is known as CORRTEX. Let me briefly describe the CORRTEX system. CORRTEX measures electronically the expansion of the hydrodynamic shock wave produced by the explosion. Hydrodynamic yield measurement is a thoroughly developed technology that, compared to the seismic approach, is much less susceptible to systematic errors. We have many years of experience with hydrodynamic yield measurements - 14 years with the technology used in the CORRTEX system. We believe CORRTEX to be the most accurate method of yield measurement available that does not reveal sensitive weapon design information.

CORRTEX was developed primarily at DOE's Los Alamos National Laboratory as a total system, including the instrumentation and analysis capability. The instrumentation, designed to operate under the conditions expected for verification missions to the U.S.S.R., is now ready for deployment. A cadre of people trained to use the instrumentation and experienced with the logistics of deployment exists within the DOE family, which includes DOE's national weapons laboratories and contractors. The capabilities to analyze CORRTEX measurements are maintained by the DOE at the national weapons laboratories. The infrastructure required to support the analytical capability includes highly qualified scientists, laboratory equipment, and super-computers. Similar capabilities exist to process raw data collected through on-site inspection, or deployment of a Local Seismic Network, which are other rights included in one or the other of the Protocols.

THE CONTINUING NEED TO TEST

After careful review of U.S. nuclear weapons requirements, this Administration, like the previous one, remains convinced that so long as we depend on nuclear weapons for deterrence we must have a sensible test program. Nuclear testing is important for detecting possible weaknesses in weapons safety and for improving the safety, security, reliability, and performance of our nuclear stockpile.

The need for nuclear testing is fundamentally similar to the need for testing any other complex technological system. The physical phenomena that occur in nuclear fission and thermonuclear weapons are so complex that even today we cannot adequately simulate, in the laboratory, conditions that exist during nuclear explosions, with temperatures and pressures similar to those in the interior of stars. There is no substitute for underground nuclear testing.

Testing is the most expedient and often the only method for demonstrating the effectiveness of new safety features. It is imperative that tests be conducted as we incorporate safety features into the stockpile, such as insensitive high explosives and fire resistant pits. Such improvements cannot be made without the benefit of nuclear testing.

The reliability of the stockpile also depends on our ability to conduct nuclear tests. Experience has shown that underground nuclear tests have been necessary to detect problems and confirm repair work. Ensuring that our nuclear stockpile is reliable means ensuring that we maintain a cadre of experienced weapons designers and engineers. Nuclear testing is the tool that enables our weapons experts to make informed competent decisions about the stockpile.

The dramatic geopolitical changes that are taking place create uncertainty regarding the future make-up of our nuclear force structure. As we begin to build down the nation's nuclear arsenal, new and different weapons will be needed to retain effectiveness and survivability of the deterrent at much lower force levels. Of course, any new weapon requires testing. In addition, as the composition of the stockpile changes, we may become more vulnerable to technological surprise by a potential adversary. For instance, there could be qualitative changes that could render our force ineffective, or innovations which could provide important new options to ourselves or our adversaries.

IMPLICATIONS OF VERIFICATION FOR THE NUCLEAR TESTING PROGRAM

The process of negotiation has required balanced attention to the requirements both for effective verification and for protection of the nuclear testing program. Treaty terms are, of course, based on full reciprocity: whatever rights we have for verification in the Soviet Union are likewise extended to the Soviet side for verification at the Nevada Test Site. As I mentioned before, to ensure that the provisions included would be manageable and acceptable to the testing program, the nuclear testing community was involved in the negotiations process from the outset.

The sides agreed, from the beginning, that the new Protocols should not prohibit any tests or explosions that would be permitted by the Treaties. In addition to the 150 kiloton limit for individual events, the Treaties prohibit interference with National Technical Means. This prohibition is reflected in the Protocols by limitations on cavity size for tests with planned yields above 35 kilotons, and by a prohibition on nearly simultaneous tests with planned yields above 35 kilotons. Both

of these restrictions are judged acceptable to the Department of Energy.

The TTBT Protocol contains features that will have operational implications for the test program at the Nevada Test Site. Among these features are:

-- the requirement to drill emplacement holes to very precise specifications;

-- the need to fill voids in or near the explosive canister with materials of a specified density;

-- the requirement on some tests to fit chokes of specified thickness and density between the explosive and diagnostic canisters;

-- the requirement to adhere to precisely defined schedules of notifications, data exchanges, and operations, resulting in some loss of scheduling flexibility;

-- scheduling of certain normal test site activities so as to take account of the verifying party's rights;

-- the requirement to drill one or more satellite holes to accommodate the hydrodynamic yield measurement cables of the verifying side;

-- the requirement to accommodate extended Soviet presence at the test site, with the special security concerns that this presence will entail;

-- the requirement to provide experienced personnel at the NTS for technical interaction with Soviet teams; and

-- the requirement to provide experienced personnel for conducting verification activities in the Soviet Union.

These requirements are manageable, and the Department of Energy has begun to take each of them into account in our plans.

Of course, the Soviets will have to live with the operational implications also.

NEXT STEPS

The Bush Administration has repeatedly affirmed its commitment to a step-by-step approach to further limits on nuclear testing. Because of the unprecedented nature and complexity of the techniques required for effective verification of underground nuclear tests, it is only prudent that we should learn how well the just-agreed verification regime works as a necessary foundation for making or accepting proposals which build on it. As we put into practice the new verification protocols, the U.S. will be ready to propose negotiations on possible further limitations that make sense from a national security standpoint, contribute to stability, and still guarantee a reliable, safe, and effective deterrent.

I understand that there is some concern over a statement, attributed to a DOE report to Congress, that next steps could not be considered for at least ten years. There is confusion over the implication of this report, because it has been interpreted to equate the reference to a ten-year program with a timetable for implementing the Administration's "next steps" policy. In fact, the report refers to a ten-year program to better evaluate whether we can maintain the reliability, safety, and continued deterrent effect of the U.S. nuclear weapon stockpile in the

event of a low-yield threshold limit or a comprehensive test ban. For such cases, an improved capability to numerically model nuclear weapons is necessary. Recent and upcoming tests will provide DOE with information and experience for improving this modeling. The goal of this DOE program is to allow us to depend less on actual nuclear test data and more on calculational modeling to maintain the U.S. deterrent. It will build on calculational expertise developed over the last 35 years of nuclear weapons design and testing. This program does not undermine the effort to pursue " next steps." Let me assure you, that should further limitations that make sense from a national security standpoint be found, the Department of Energy's "ten-year" program can proceed in parallel with the negotiation and possible agreement on other "intermediate steps" on nuclear testing limitations.

CONCLUSION

In conclusion, I wish to emphasize that the Department of Energy is satisfied that the new features required by the Protocol are acceptable in terms of the U.S. nuclear testing program. They strike the proper balance between the requirements of the U.S. nuclear weapons testing program and the need to verify effectively Soviet compliance with the provisions of the TTBT and PNET. Thank you.

Chairman NUNN. Thank you. Admiral Fox?

STATEMENT OF REAR ADM. THOMAS R. FOX, USN, DEPUTY DIRECTOR FOR INTERNATIONAL NEGOTIATIONS, J-5, THE JOINT STAFF

Admiral Fox. Mr. Chairman and members of the committee, I appreciate the opportunity to be here today. My purpose, as you requested, is to provide the committee with the JCS views on the ratification of the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty, to include the Joint Chiefs' position on associated safeguards.

I have a statement for the record which outlines the military advice of the Chairman and the Joint Chiefs of Staff in the matters under consideration by the committee today.

Chairman NUNN. Without objection, your statement will be made part of the record.

NATIONAL SECURITY CRITERIA

Admiral Fox. Before I summarize its contents, I believe it would be useful to first reiterate the JCS views regarding the general criteria for judging whether the Threshold Test Ban Treaty and the Peaceful Nuclear Explosion Treaty are compatible with the national security of the United States and its allies. Specifically, we believe first and foremost that the treaty must be effectively verifiable.

Second, the United States must not accept limits on nuclear testing if the Soviet Union has or can achieve a significant advantage in any militarily important area of nuclear weapons technology which, under these treaties, could not be overcome by the United States.

Third, recognizing that we must plan for the possibility that the Soviet Union could seek to take advantage of any reasonably safe opportunity for clandestine testing, the treaties must insure that any undetected clandestine testing would have no serious adverse effect on relative balance of military power.

Finally, for so long as nuclear weapons remain an essential element of our overall deterrence strategy, there should be safeguards to hedge against unexpected political and technical events affecting the military balance.

NUCLEAR TESTING TREATY SAFEGUARDS

Now, insofar as safeguards are concerned in assessing the military risks associated with the constraints of the 1963 Limited Test Ban Treaty, the Chiefs stipulated that their support for the ratification of the treaty was premised on the understanding that specific measures, or safeguards, to reduce these risks would be adopted by the U.S. Government.

This requirement for safeguards was reviewed in 1987 and reaffirmed for the Limited Test Ban Treaty and considered necessary for the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty. Generally, they address the following concepts:

Continuing the nuclear test program;

Maintaining competent laboratories and programs to attract and retain scientific expertise;

Maintaining a U.S. capability to overcome any Soviet advantage achieved by a "breakout;"

Improving compliance monitoring capabilities; and

Improving the knowledge of other countries' nuclear arsenals and weapons programs.

GAINS AND LOSSES TO RATIFICATION

With respect to ratification of the treaties, we have made an assessment of relative advantages and disadvantages and conclude the following:

First, the Joint Chiefs believe that the provisions of the treaties, especially the verification protocols, will deter Soviet cheating;

Second, the two parties will gain mutual confidence in the agreed obligations, and we will have increased confidence that the Soviets are being held to the same constraints as the United States; and

Third, asymmetries in high yield test programs will be reduced.

On the other side of the ledger is the fact that the United States is prevented from exploring advanced high yield technologies; but, of course, the Soviets operate under the same constraints.

In addition, the United States cannot conduct full yield competence tests of some stockpiled weapons, a limitation shared by the Soviets.

Taking into account the net gains and losses, General Powell and the Joint Chiefs of Staff recommend ratification of the treaties on the condition we will exercise our full spectrum of monitoring and inspection rights under the verification protocols and that the Congress supports the safeguards.

Thank you, gentlemen. That concludes my remarks.

[The prepared statement of Admiral Fox follows:]

PREPARED STATEMENT BY

RADM THOMAS R. FOX, USN

DEPUTY DIRECTOR FOR INTERNATIONAL NEGOTIATIONS

J-5

THE JOINT STAFF

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE,

(U) I APPRECIATE THIS OPPORTUNITY TO BE HERE TODAY TO DISCUSS RATIFICATION OF THE THRESHOLD TEST BAN TREATY (TTBT) AND THE PEACEFUL NUCLEAR EXPLOSIONS TREATY (PNET).

(U) AS THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF STATED IN HIS TESTIMONY BEFORE THE SENATE SELECT COMMITTEE ON INTELLIGENCE, THE JOINT CHIEFS BELIEVE THAT FOR AS LONG AS THE UNITED STATES MUST DEPEND ON NUCLEAR WEAPONS, WE MUST BE FREE TO CONDUCT NUCLEAR TESTS TO ENSURE RELIABILITY, SAFETY, SECURITY, SURVIVABILITY, EFFECTIVENESS, MODERNIZATION, AND ASSESSMENT OF NUCLEAR EFFECTS. WE CANNOT ASSURE THE CREDIBILITY OF OUR NUCLEAR DETERRENT WITHOUT TESTING OUR NUCLEAR WEAPONS.

(U) TODAY, YOU HAVE ASKED ME TO PROVIDE THE COMMITTEE WITH THE JOINT STAFF VIEWS ON THE RATIFICATION OF THE TTBT AND PNET AND THE JOINT STAFF POSITION WITH REGARD TO SAFEGUARDS. BEFORE I DO, HOWEVER, I WANT TO ADDRESS GENERAL CRITERIA FOR JUDGING WHETHER THE THRESHOLD TEST BAN TREATY AND THE PEACEFUL NUCLEAR EXPLOSIONS TREATY ARE COMPATIBLE WITH THE NATIONAL SECURITY OF THE U.S. AND ITS ALLIES. WHEN THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF TESTIFIED IN AUGUST 1963 ON THE LIMITED TEST BAN TREATY, HE SPECIFIED THE STANDARDS THE JCS WOULD USE IN REACHING A JUDGEMENT. THEY ARE:

- THE TREATIES SHOULD BE EFFECTIVELY VERIFIABLE.
- THE U.S. SHOULD NOT ACCEPT LIMITS ON NUCLEAR TESTING IF THE USSR HAS OR CAN ACHIEVE SIGNIFICANT ADVANTAGE IN ANY MILITARILY IMPORTANT AREA OF NUCLEAR WEAPONS TECHNOLOGY WHICH, UNDER THESE TREATIES, COULD NOT BE OVERCOME BY THE U.S.
- RECOGNIZING THAT WE MUST PLAN FOR THE POSSIBILITY THAT THE USSR MAY SEEK TO TAKE ADVANTAGE OF ANY REASONABLY SAFE OPPORTUNITY FOR CLANDESTINE TESTING, THE TREATIES ARE ACCEPTABLE ONLY IF UNDETECTED CLANDESTINE TESTING WOULD HAVE NO SERIOUS ADVERSE EFFECT ON THE RELATIVE BALANCE OF MILITARY POWER.
- SO LONG AS NUCLEAR WEAPONS REMAIN AN ESSENTIAL ELEMENT OF OUR OVERALL DETERRENT STRATEGY, THERE SHOULD BE SAFEGUARDS TO HEDGE AGAINST UNEXPECTED POLITICAL OR TECHNICAL EVENTS, AFFECTING THE MILITARY BALANCE.

(U) GENERAL POWELL AND THE JOINT CHIEFS STILL SUPPORT THOSE STANDARDS. HOWEVER, POLITICAL CHANGES IN THE SOVIET UNION HAVE CREATED A DEGREE OF TRANSPARENCY FOR SOVIET MILITARY ACTIVITIES -- AND CONSTRAINTS ON THE SOVIET MILITARY -- WHICH WERE NOT PRESENT IN 1963 WHEN THE LIMITED TEST BAN TREATY WAS RATIFIED AND IMPLEMENTED. THUS, AS THE JOINT STAFF ASSESSES THE MILITARY IMPLICATIONS OF SOVIET NUCLEAR TESTING PROGRAMS AND THE POSSIBLE SCENARIOS FOR THE SOVIETS VIOLATING THE TREATIES YOU ARE NOW CONSIDERING, WE DO SO WITH AN EYE TO THE CONDITIONS UNDER WHICH SOVIET NUCLEAR TESTING PROGRAMS NOW ARE CONDUCTED.

SAFEGUARDS

(U) AS I POINTED OUT EARLIER, IN 1963 THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF STATED, IN CONJUNCTION WITH RATIFICATION OF THE LIMITED TEST BAN TREATY (LTBT), THAT NO LIMITATION ON NUCLEAR TESTING SHOULD BE ACCEPTED IF THE SOVIET UNION HAD OR COULD

ACHIEVE A SIGNIFICANT ADVANTAGE IN ANY MILITARILY IMPORTANT AREA OF NUCLEAR WEAPON TECHNOLOGY WHICH, UNDER THE TREATY, COULD NOT BE OVERCOME BY THE UNITED STATES.

(U) THE JCS RECOGNIZED THAT THERE WERE ATTENDANT MILITARY RISKS ASSOCIATED WITH THE CONSTRAINTS OF THE LTBT AND STIPULATED THAT THEIR SUPPORT FOR THE RATIFICATION OF THE LTBT WAS WITH THE UNDERSTANDING THAT SAFEGUARDS TO REDUCE THOSE RISKS WOULD BE ADOPTED BY THE US GOVERNMENT. THE ADMINISTRATION CONCURRED AND RECOMMENDED THAT THE SAFEGUARDS BE INCORPORATED INTO THE RATIFICATION PROCESS. THESE SAFEGUARDS WERE NOT FORMALLY INCORPORATED BUT WERE "READ INTO THE CONGRESSIONAL RECORD" DURING THE RATIFICATION PROCEEDINGS.

(U) THE REQUIREMENT FOR THE SAFEGUARDS WAS REVIEWED IN 1987 AND REAFFIRMED FOR THE LIMITED TEST BAN TREATY AND CONSIDERED NECESSARY FOR THE THRESHOLD TEST BAN TREATY AND THE PEACEFUL NUCLEAR EXPLOSIONS TREATY. THE SAFEGUARDS ARE DESIGNED TO ENSURE THE U.S. CAN RESPOND TO ANY "SIGNIFICANT MILITARY ADVANTAGE" THE SOVIETS MIGHT ACHIEVE THRU ANY CHEATING SCENARIOS. THESE PROPOSED SAFEGUARDS ADDRESS THE FOLLOWING GENERAL CONCEPTS:

- CONTINUING THE NUCLEAR TESTING PROGRAM;

  PURPOSE: MAINTAINS UNDERGROUND NUCLEAR TESTING PROGRAMS (WITHIN THE CONSTRAINTS OF EXISTING TREATIES ON NUCLEAR TESTING)DESIGNED TO ADD TO OUR KNOWLEDGE AND IMPROVE NUCLEAR WEAPONS SO AS TO INSURE GREATER SAFETY, RELIABILITY, AND EFFECTIVENESS IN ACCORDANCE WITH THE NEEDS OF OUR NATIONAL SECURITY. THESE KINDS OF PROGRAMS ARE IN EXISTENCE AND AS IN-PLACE PROGRAMS

SUSTAIN EXISTING CAPABILITIES.

• MAINTAINING COMPETENT LABORATORIES AND PROGRAMS TO ATTRACT AND RETAIN SCIENTIFIC EXPERTISE;

PURPOSE: MAINTAINS MODERN NUCLEAR LABORATORY FACILITIES AND PROGRAMS IN THEORETICAL AND EXPLORATORY NUCLEAR TECHNOLOGY. THIS SAFEGUARD INSURES THAT A SCIENTIFIC INFRASTRUCTURE FOR SUCH TECHNOLOGY IS IN PLACE AND VIABLE. THESE KINDS OF PROGRAMS ARE IN PLACE AS WELL.

• MAINTAINING A U.S. CAPABILITY TO OVERCOME ANY SOVIET ADVANTAGE ACHIEVED BY A "BREAKOUT;"

PURPOSE: MAINTAINS THE BASIC CAPABILITY TO RESUME PROSCRIBED NUCLEAR TEST ACTIVITIES PROHIBITED BY TREATIES SHOULD THE UNITED STATES CEASE TO BE BOUND BY SUCH PROHIBITIONS. THIS CAPABILITY IS IN PLACE TODAY.

• IMPROVING COMPLIANCE MONITORING CAPABILITIES; AND,

PURPOSE: MAINTAINS COMPREHENSIVE, AND CONTINUING RESEARCH AND DEVELOPMENT PROGRAMS TO IMPROVE OUR MONITORING CAPABILITIES AND OPERATIONS SO WE CAN PROVIDE THE HIGHEST CONFIDENCE POSSIBLE WITH RESPECT TO ANY NON-COMPLIANCE ACTIONS ON THE PART OF OTHER NATIONS WITH EXISTING NUCLEAR TESTING TREATIES. THESE PROGRAMS HAVE BEEN IMPLEMENTED AS WELL.

• IMPROVING KNOWLEDGE OF OTHER COUNTRIES' NUCLEAR ARSENALS AND WEAPONS PROGRAMS.

PURPOSE: PROVIDES FOR THE CONTINUED DEVELOPMENT OF A BROAD RANGE OF INTELLIGENCE GATHERING AND ANALYTICAL CAPABILITIES AND OPERATIONS TO IMPROVE OUR KNOWLEDGE OF THE NUCLEAR ARSENALS, NUCLEAR WEAPONS DEVELOPMENT PROGRAMS, RELATED NUCLEAR PROGRAMS, AND THE CAPABILITIES AND ACHIEVEMENTS OF THE SOVIET UNION AND OTHER NATIONS.

(U) THE FIRST FOUR OF THE ABOVE SAFEGUARD CONCEPTS HAVE BEEN "EXERCISED" IN ONE FORM OR ANOTHER SINCE RATIFICATION OF THE LTBT IN 1963. WITH THE SUCCESSFUL NEGOTIATION OF THE PROTOCOLS TO THE TTBT AND PNET COMPLETED.ON JUNE 1, 1990 AND FORMAL CONSIDERATION OF THE TREATIES IMMINENT, INCORPORATION OF SAFEGUARDS DURING THE TTBT/PNET RATIFICATION PROCESS PROVIDE WHAT THE JCS WOULD DESCRIBE AS AN "INSURANCE POLICY"TO OUR NATIONAL STRATEGY OF NUCLEAR DETERRENCE.

(U) TO DATE SAFEGUARDS HAVE SERVED US WELL. OUR WEAPONS DEVELOPMENT PROGRAMS ACHIEVE THE HIGHEST POSSIBLE STANDARDS FOR NUCLEAR WEAPON SAFETY WHILE SIMULTANEOUSLY ENSURING THE HIGHEST LEVELS OF MILITARY EFFECTIVENESS AT THE LOWEST YIELDS POSSIBLE. SAFEGUARDS HAVE ENSURED THAT OUR INFRASTRUCTURE OF SCIENTESTS AND ENGINEERS IS A VIABLE ELEMENT OF OUR NUCLEAR TESTING PROGRAM, PARTICULARLY WITH RESPECT TO STOCKPILE RELIABILITY. FOR EXAMPLE, THE RECENT TESTING OF THE USE OF INSENSITIVE HIGH EXPLOSIVES HAS LED TO THE IMPROVED SAFETY OF THE STOCKPILE AS A RESULT. RESEARCH AND DEVELOPMENT PROGRAMS CONTRIBUTED DIRECTLY TO THE DEVELOPMENT OF IMPROVED MONITORING METHODS. A SPECIFIC EXAMPLE WOULD BE CORRTEX (CONTINUOUS REFLECTOMETRY FOR RADIUS VERSUS TIME EXPERIMENT).

(U) ALTHOUGH THE UNITED STATES HAS BEEN ABLE TO MEET THE SOVIET NUCLEAR THREAT WHILE REMAINING IN COMPLIANCE WITH THE

CONSTRAINTS OF THE THRESHOLD TEST BAN TREATY AND WILL LIKELY CONTINUE TO BE ABLE TO DO SO, THE AFOREMENTIONED SAFEGUARDS INSURE THAT OVER TIME, THE QUALITY OF OUR NUCLEAR DETERRENCE WOULD NOT BE UNACCEPTABLY ERODED. ACCORDINGLY, THE JOINT STAFF BELIEVE SAFEGUARDS SHOULD BE INCORPORATED AS A FORMAL PART OF THE RATIFICATION PROCESS. TO THIS END WE HAVE BEEN WORKING CLOSELY WITH THE SENATE STAFF TO DETERMINE HOW BEST TO ACHIEVE THIS OBJECTIVE.

JCS SUPPORT OF TREATY RATIFICATION

(U) OVER THE LAST 14 YEARS, THE U.S. HAS CONTINUALLY OBSERVED THE THRESHOLD LIMIT OF THE TREATIES WHILE MAINTAINING THE STRENGTH OF OUR DETERRENT. ALTHOUGH WE WERE SURE OF U.S. COMPLIANCE, OUR CAPABILITY TO MONITOR SOVIET COMPLIANCE WAS NOT ADEQUATE TO ENSURE THE SOVIETS WERE OBSERVING TREATY LIMITS. NOW, WITH EFFECTIVE MONITORING MADE POSSIBLE BY THE PROTOCOLS, AN ADEQUATE JUDGEMENT CAN BE MADE REGARDING FUTURE SOVIET COMPLIANCE WITH THE 150 KILOTON THRESHOLD. GIVEN SOVIET COMPLIANCE, THE FOLLOWING ADVANTAGES ACCRUE:

- EFFECTIVE VERIFICATION PROCEDURES DETER SOVIET CHEATING AND INCREASE THE LIKELIHOOD THAT ANY CHEATING WOULD BE DISCOVERED. THEY ALSO ALLOW US TO MAKE MORE ACCURATE JUDGEMENTS REGARDING THE SIGNIFICANCE OF SOVIET TESTS BELOW THE LIMIT.

- EFFECTIVE VERIFICATION LAYS THE GROUNDWORK FOR MUTUAL CONFIDENCE IN THE AGREED OBLIGATIONS, THEREBY ENHANCING STRATEGIC STABILITY.

- THE MONITORING METHODS CONTAINED IN THE PROTOCOLS WILL NOW PROVIDE THE US CONFIDENCE THAT THE SOVIETS ARE BEING HELD TO

THE SAME CONSTRAINTS AS THE UNITED STATES (I.E., 150 KILOTON THRESHOLD).

- EFFECTIVE VERIFICATION IMPOSES A QUANTITATIVE LIMIT ON A KEY ASPECT OF NUCLEAR WEAPONS DEVELOPMENT COMPETITION. THE TREATIES PREVENT THE SOVIETS FROM CONDUCTING HIGH YIELD EXPERIMENTS AND THEREFORE POSSIBLY CONSTRAIN THEIR HIGH YIELD TECHNOLOGY IN THE SAME MANNER AS THE US. BOTH SIDES CAN BE ASSURED HIGH-YIELD TESTS ARE NOT BEING CONDUCTED, THEREBY REDUCING THE CHANCES OF ASYMMETRIES DEVELOPING.

(U) CONVERSELY, COMPLIANCE WITH THE TERMS OF THE THRESHOLD TEST BAN TREATY PREVENTS THE UNITED STATES FROM EXPLORING ADVANCED HIGH YIELD TECHNOLOGIES AS WELL AS CONDUCTING CONFIDENCE TESTS OF SOME STOCKPILED WEAPONS. HOWEVER, THESE LIMITATIONS ARE MANAGEABLE WITH RESPECT TO OUR OVERALL DETERRENT.

CONCLUSION

(U) THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF RECOMMENDS RATIFICATION OF THE TREATIES. THE ONLY CONDITIONS OF THIS SUPPORT ARE FIRST, AN ASSURANCE THAT THE UNITED STATES WILL MAINTAIN THE NATIONAL RESOLVE TO EXECUTE THE VERIFICATION METHODS PERMITTED BY THE NEW PROTOCOLS TO THE TREATIES AND SECOND, THAT CONGRESSIONAL SUPPORT FOR SAFEGUARDS WILL ALWAYS BE PRESENT.

Chairman NUNN. Thank you, Admiral.

Let me reiterate to you, and you may not be able to answer this today, but I think it is very important that you take a look at the Senate Foreign Relations-passed safeguards, look at it compared to what JCS position has been and the administration's position has been, and tell us if there is any difference, whether there is any objection to them, whether there is any omission, whether there is anything that you would add or subtract?

Admiral Fox. We have no objections to the Senate Foreign Relations safeguards, the first part of the resolution.

Chairman NUNN. So you agree with that?

Admiral Fox. Yes, sir. We have been through them.

Although the words are general, and we think they are purposely couched in general terms, less specific than before, we feel that their intent is still very clear.

Chairman NUNN. Dr. Alessi?

Dr. ALESSI. I agree with the Admiral's remarks.

Chairman NUNN. Doctor, in your opening statement you say that, "should further limitations that make sense from a national security standpoint be found, the Department of Energy's 10-year program can proceed in parallel with the negotiation and possible agreement on other intermediate steps on nuclear testing limitations".

Does that statement mean that as of today the Department of Energy has not found any intermediate steps beyond the limitations contained in TTBT and PNET that it thinks "makes sense from a national security standpoint"?

Dr. ALESSI. It is my understanding that in the past we have not found any such limitations. We are in the process now of working with the laboratories to look at the issue once again.

Chairman NUNN. You do not have a closed mind on it, then?

Dr. ALESSI. We do not have a closed mind on this.

Chairman NUNN. You are undertaking a review as of when? When did you start that?

Dr. ALESSI. It began this summer.

Chairman NUNN. Who is carrying that out? Who is responsible?

Dr. ALESSI. The laboratories.

Chairman NUNN. Under whose jurisdiction? Under which Energy Department official?

Dr. ALESSI. It was at my request.

Chairman NUNN. At your request, so it is under your shop?

Dr. ALESSI. Well, I will be working very closely with Admiral Barr, who is the Director of the Office of Military Applications.

Chairman NUNN. What is the time frame for that review?

Dr. ALESSI. I did not specify a time frame for the review in part because the experts who would be involved in the review were very heavily involved in preparing testimony for the hearings for these treaties as well as answering a lot of the questions.

Chairman NUNN. Do you think it will be this year or next year?

Dr. ALESSI. Yes. I think that we will have looked from a DOE perspective at these issues probably sometime this year, later in the year.

Chairman NUNN. Do you believe that the Reagan administration should have pledged in 1986 that it would enter into new negotiations on further limitations immediately after TTBT and PNET were ratified if neither DOE nor any other agency had identified further limitations that it believed were acceptable?

Dr. ALESSI. If we identified no limitations that were acceptable?

Chairman NUNN. Well, you say you have not identified any?

Dr. ALESSI. We have not identified any.

Chairman NUNN. The Reagan administration pledged to begin new negotiations on further limitations immediately after the ratification of these two treaties, and I am asking if you believe that should have been done. Do you believe that pledge should have been made?

Dr. ALESSI. I think there are occasions when you can begin discussions or negotiations with the other side just to hear them out without necessarily having identified a next step for yourself.

Chairman NUNN. Admiral Fox, what is the JCS doing on this subject in terms of next steps?

Admiral FOX. The JCS position on next steps supports the President's policy. We see no testing limit beyond that provided for in the Threshold Test Ban Treaty, that is in the national interest.

We do see the Comprehensive Test Ban Treaty remaining a long-term objective of the United States.

Chairman NUNN. Doctor, in Dr. Barker's statement he indicated that the Defense Department is concerned by the statement in June by the laboratory directors that "at the current level of testing we can no longer maintain both the level of nuclear competence and the forward-looking program that meets the Nation's needs in safety, security, effectiveness, stockpile reliability and avoidance of technological surprise."

When the directors of the laboratories referred to current levels, they were talking about the rate of nuclear tests and not the 150-kiloton yield. Is that correct?

Dr. ALESSI. That is correct.

Chairman NUNN. The directors were saying they needed to double the current testing rate; is that right?

Dr. ALESSI. That is my understanding.

Chairman NUNN. Is the rate at which we conduct nuclear tests primarily a function of budget resources?

Dr. ALESSI. Yes, it is.

Chairman NUNN. Doctor, did the Energy Department know of the lab directors' position when it submitted its budget request for nuclear testing in fiscal year 1991?

Dr. ALESSI. I will have to submit an answer for the record. I do not know the answer.

[The information follows:]

The fiscal year 1991 budget request is a product of competing priorities. It reflects the need to emphasize formality and discipline of operations, and to continue the effort to upgrade our performance in environmental, safety and health matters. To do this within fiscal limitations means less research and development and less testing. We knew the laboratory Directors' position when we finalized the fiscal year 1991 budget and the laboratory Directors understood the priorities and constraints that guided our decisions on test levels.

Chairman NUNN. Your budget request for nuclear testing proposed only a modest 6 percent increase over fiscal year 1990, and yet they are saying they need double the current rate of nuclear testing.

Could it be that you all did not take that very seriously?

Dr. ALESSI. I would not go so far as to say that. I think that in reality the Department of Energy is faced with the same budget constraints with which the Department of Defense is faced, limited resources at the same time that we have a tremendous demand put on us for improved health and safety and cleanup.

Chairman NUNN. So it is a matter of budget priorities?

Dr. ALESSI. Yes, sir.

Chairman NUNN. Senator Warner.

Senator WARNER. Thank you, Mr. Chairman.

Dr. Alessi, in the DOE annual report to the Congress dated February 22, 1990, Secretary Watkins stated in his letter that "progress in attempting to prepare for further limitations on nuclear testing is severely limited by fiscal rather than technical constraints at the present time."

The report states that the nuclear testing program at its present low level may continue for a decade or longer before adequate progress is made toward a full evaluation of the effects on the U.S. nuclear weapons stockpile of the low yield threshold or a comprehensive test ban.

What, if any, success has DOE had in seeking increased funding for nuclear testing or to adjust testing programs to more effectively and efficiently utilize available funding?

Dr. ALESSI. To the extent that we can within the existing testing budget, we have begun some tests with a view towards analyzing the question you just raised.

I think it is pretty clear, though, that if we are going to have a robust program to answer the kinds of questions the Congress asked for, we will need an increased testing budget.

Senator WARNER. How might the implementation of the TTBT and PNET affect the 10-year estimate for making "adequate progress" in this evaluation report?

Dr. ALESSI. The TTBT and PNET will have no effect on this.

Senator WARNER. In your statement you expressed DOE's support for the ratification of the treaties with the protocols which allow the United States "to verify effectively that the Soviet Union is observing the 150-kiloton constraint on its underground nuclear tests."

Are you aware of any remaining concerns of DOE relating to effective verification of any of the treaty provisions such as tests at the 35-kiloton or 50-kiloton trigger levels?

Dr. ALESSI. The primary obligation of the treaty, in fact the obligation of the treaty, is not to test above 150 kilotons in yield. The trigger levels are meant to support that. Although you might not have the same confidence in trigger levels as you would have in the 150 kiloton, they serve their purpose well by insuring a very effective verification of Soviet compliance of the 150-kiloton limitation.

Senator WARNER. Are you aware of any additional technologies for monitoring that were proposed by the United States and rejected by the Soviets?

Dr. ALESSI. The position of the United States was accepted by the Soviets.

Senator WARNER. There was nothing which might have significantly enhanced our ability to verify compliance with the treaties.

Dr. ALESSI. That is correct.

Senator WARNER. Thank you, Mr. Chairman, and I thank the Admiral, and I thank you, Doctor, for your contributions.

Chairman NUNN. Thank you, Senator Warner. My final question today is on behalf of Senator Kennedy who submitted a letter with this question and this is for you, Doctor. Soviet academician Velikov, who chairs the Subcommittee on Armed Forces of the Supreme Soviet, has scheduled hearings before his subcommittee in late September on the future of Soviet nuclear testing.

He has invited the Soviet Union's national laboratory directors to testify, and he has also invited a full spectrum of foreign experts to present their views, including representatives from Los Alamos and Livermore National Laboratories.

My understanding, this is speaking for Senator Kennedy, is that DOE's initial reaction to Chairman Velikov's request has been to discourage participation by experts from our laboratories.

According to Senator Kennedy, "I find this reaction puzzling. For years the DOE has complained about the lack of democratic restraints on the Soviet nuclear establishment. Now that prodemocracy forces in the Soviet Union have finally begun to implement a process of parliamentary oversight over their own military establishment, why does the DOE now seem unwilling to support this process by allowing its own experts to testify?" End quote, question.

Dr. ALESSI. My response to that would be the following: that requests for testimony before the Supreme Soviet by people who do classified work for the United States on nuclear testing or nuclear weapons design should be from Government to Government, and not from the Soviet Government to a private group.

Chairman NUNN. Who did the request go to? I missed that part.

Dr. ALESSI. I have not, I think it went to Professor Von Hipple.

Chairman NUNN. Who is he?

Dr. ALESSI. I am not quite sure of the name of the organization.

Chairman NUNN. Is he at the laboratory?

Dr. ALESSI. No, he is at Princeton University.

Chairman NUNN. So you are saying that this request by Velikov did not go to our Government?

Dr. ALESSI. It did not come to the U.S. Government. It came to a private organization, and that makes it very difficult for us to respond.

Chairman NUNN. If the invitation was extended to the U.S. Government, do you think it would then be considered in a different light?

Dr. ALESSI. We would at least have a vehicle for it being considered.

Chairman NUNN. So right now it is not in the proper procedure for consideration?

Dr. ALESSI. That is correct, sir.

Chairman NUNN. What is the laboratory attitude on this? Would they want to testify, do you feel they could testify without breaching security?

Dr. ALESSI. I would hesitate to answer for the individuals who were named or who were requested. I believe they feel they could defend the need for nuclear testing before anybody.

Chairman NUNN. Without breaching security?

Dr. ALESSI. Without breaching security.

Chairman NUNN. Okay, Admiral Fox, Dr. Alessi, we thank you very much and as I mentioned earlier, we are going to be perhaps, depending on events, moving very rapidly on these, and my guess is, after all these years, that it is not going to be as much debate as on most treaties, so I would suggest to you that you get your views in and your supplemental reviews and answer for the record as rapidly as possible, in the next couple of days.

Thank you very much.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN WARNER

SAFEGUARDS

Senator WARNER. Has the administration lowered its standards for safeguards which the President has stated are necessary for maintaining a safe, effective, reliable, and survivable nuclear deterrent?

Dr. BARKER. The administration has not lowered its standards for the safeguards that must be maintained in order to ensure a safe, effective, reliable, and survivable nuclear deterrent. Acceptance by the administration of the Senate Foreign Relations Committee language on safeguards in the resolution does not signify a weakening of our standards or lessening of our commitment to safeguards.

We have had strong safeguard language since the Limited Test Ban Treaty in 1963; however, over the years the annual number of nuclear tests conducted has declined to a point where the nuclear test program is currently at its lowest number of annual tests since 1954, except for the 1958–1961 testing moratorium. In this regard, the Directors of the Los Alamos and Lawrence Livermore National Laboratories have stated their concern in a letter to Secretary Watkins on June 6, 1990, which was reprinted in the June 26 Congressional Record. In that letter, Dr. Hecker and Dr. Nuckolls stated that "At the current level of testing, we can no longer maintain both the level of nuclear competence and the forward-looking program that meets the Nation's needs in safety, security, effectiveness, stockpile reliability, and avoidance of technological surprise," and called for the present testing rate to be doubled to meet national security requirements. On July 31, 1990, Dr. Nuckolls repeated his concern in testimony before the Senate Foreign Relations Committee, describing the current situation as critical: ". . . budgetary limitations already allow us to do too few tests to meet current requirements, or to prevent a significant erosion of our nuclear capability."

I agree with the concerns raised by the Directors. I have also pointed out in testimony on the nuclear testing treaties that U.S. national security strategy requires that the United States must maintain in its stockpile—with no lessening of currently high standards for safety, reliability, effectiveness, and survivability—nuclear weapons with yields significantly higher than 150 kilotons, and that this requires that the United States be able to test up to the 150-kiloton threshold.

We welcome Senate recognition of the importance of safeguards. As a matter of policy, the administration will pursue all safeguards in an effective manner. For this reason, the administration intends to conduct a continuing, comprehensive, and vigorous nuclear weapon test program and to maintain strong, modern nuclear weapon laboratories and test facilities to meet U.S. national security requirements. U.S. Government support for the safeguards in the resolution will help us to do so.

AUTHORITATIVENESS OF WITNESSES

Senator WARNER. The administration has provided written assurances that testimony of administration witnesses before the Senate on the TTBT and PNET is consistent with the negotiating record of the treaties. Ambassador Lehman provided such an assurance to the Senate Foreign Relations Committee in a letter dated September 11, 1990. In earlier testimony during this hearing, Ambassador Lehman stated that the administration has reviewed the administration witnesses' testimony and "believes" that the testimony has been consistent with the negotiating record and is therefore "authoritative" in explaining to the Senate the meaning or obligations of the treaties.

What is the administration's position concerning authoritativeness of testimony to the Senate if it is later determined that such testimony conflicts with statements of documents in the negotiating record?

Ambassador LEHMAN and Ambassador ROBINSON. As we have previously stated, the Senate can rely upon the authoritativeness of administration witnesses and their written statements. The administration will undertake to review the entire record carefully. Should any discrepancies be found, they will be brought to the attention of the Senate.

MONITORING RESTRICTIONS

Senator WARNER. Ambassador Robinson, the protocol to the TTBT specifies that on-site inspection may be used for all tests above 35 kiloton level, but that the veri-

fying party must choose between on-site inspection and CORRTEX for tests above the 50 kiloton level.

Why was this provision written in such a way that required a choice between these two testing methods for 50 kiloton tests?

How was this provision negotiated? Was it a U.S. proposal or a Soviet proposal?

What, if any, effect does this exclusionary language have on our ability to effectively verify larger tests?

Ambassador ROBINSON. On-site inspection provides the right to validate independently the conditions of emplacement of the explosive canister and to collect geological samples of the soil around each explosive canister. Similar rights are also provided within the hydrodynamic measurement method (CORRTEX) preparation procedures, so the Verifying Party will also obtain the OSI information while carrying out the yield measurements (CORRTEX). Therefore, both sides agreed there was no requirement to give the Verifying Party the right to carry out separately hydrodynamic measurements and OSI for tests with planned yields over 50 kt.

The language is written so that the Verifying Party would have the right to conduct OSI activities in the event it elects not to conduct hydrodynamic yield (CORRTEX) measurements.

STATUS OF PROTOCOLS

Senator WARNER. Ambassador Lehman, the new protocols which were submitted to the Senate in June of this year were negotiated 14 to 16 years after the treaties themselves were signed.

What is the status of the protocols in relation to the treaties?

Ambassador LEHMAN. The protocols are an integral part of the treaties.

Senator WARNER. In other words, does a violation of the protocols constitute a violation of the treaties?

Ambassador LEHMAN. Yes.

Senator WARNER. What is the administration's view concerning the relative importance of a violation of the protocols versus a violation of the treaties?

Ambassador LEHMAN. A violation of the protocols constitutes a violation of the treaties. The significance of a violation is not dependent upon whether the violation is of a provision of the basic treaty or of its protocol.

RIGHTS VERSUS OBLIGATIONS

Senator WARNER. Ambassador Lehman, the treaties and protocols set forth the rights of the United States and Soviet Union for monitoring and verification. What is the administration's intent concerning full exercise of all rights under the protocols?

Ambassador LEHMAN. The administration's intent is to exercise all the rights to which the United States is entitled in the protocols.

REASSESSMENT OF PAST VIOLATIONS

Senator WARNER. Ambassador Lehman, with the extensive monitoring provisions and the technologies incorporated in the treaty protocols, the United States should be able to obtain much more accuracy in its calibration of yield estimates from seismic monitoring.

What effect do you expect this information to have on the ability to more accurately estimate yields from past Soviet nuclear tests which were monitored only with remote seismic systems?

Will the administration attempt to reassess past Soviet tests which were characterized as "likely" violations of the treaties?

Ambassador LEHMAN. Compliance findings on this subject stand as submitted to the Congress. Unfortunately, the United States was unable to make on-site yield measurements and was forced to rely on teleseismic National Technical Means to assess past Soviet events that raised compliance concerns. While data that the United States gathers on future Soviet tests may shed light on past concerns, there is no guarantee that past compliance concerns will be clarified by data collected under the provisions or the new protocol.

OUTSTANDING ISSUES IN THE PROTOCOL

Senator WARNER. Ambassador Robinson, the former Science Advisor to President Reagan, testified to the SSCI that ". . . there are some 95 statements in the protocol text that reference matters to be agreed upon in the future. While many of these statements add flexibility to the future implementation of the TTBT, some give a de

facto veto to the Soviet Union." Are there 95 statements in the protocol, as stated by Dr. Graham, and if so, when will these be negotiated and will they be submitted to the Senate for review? Also, what does he mean when he says the Soviets will have a veto?

Ambassador ROBINSON. There are indeed many instances in the TTBT Protocol in which reference is made to the possibility of future agreement. Some of these agreements would be made in either the Coordinating Group, which will implement the on-site verification activities for a specific test, or in the Bilateral Consultative Commission. It is important, however, to understand fully the kind of "agreement" that is referenced. Agreements made in these fora relate to the details of implementation of basic rights and obligations set forth in the protocols. They fall into two categories: (1) those that relate to the application of basic provisions to specific tests and (2) those designed to permit certain actions or conditions only if the sides agree on measures that would ensure effective verification under those conditions.

The first category relates to allowing certain minor administrative or technical changes that may be necessitated by actual field conditions for a specific test. An example would be Section V, paragraph 5(e)(i)1 where it is stated that "The total volume of core samples or rock fragments extracted at each depth shall be no less than 400 cubic centimeters and no more than 3,000 cubic centimeters *unless the Parties otherwise agree.*" The lower limit was set to ensure a Verifying Party's right to usable samples at each of 10 locations. However, the Verifying Party personnel in a field situation could obtain usable cores at lower volumes and decide to forego collecting larger amounts at one or more depth. The "agreement" phrase allows them to extract less only if the Parties so agree. Similarly the upper limit was to protect Testing Party interests against unwarranted amounts of material being removed. In a field situation, if an intact core were somewhat larger than 3,000 cubic centimeters and the Verifying Party requested that it not be reduced in size, the Testing Party, if it believed its interests were not harmed, could oblige.

The second category of agreements involves permitting a test in certain conditions only if the sides agree on measures that would ensure effective verification. (As stated in paragraph 13 of Section XI of the Protocol, the agreements cited in paragraphs 3, 4, 5, 6, and 9 of Section III cannot be handled by the Coordinating Group. Except for paragraph 9, these are the provisions that constitute the second category.)

As an example of the second category, Section III, paragraph 6 states that unless the Parties agree on verification measures, a test cannot be conducted in a cavity having a volume exceeding 20,000 cubic meters. These provisions (Section III, paragraphs 3, 4, 5, and 6) in fact give each side a veto over certain tests. They thereby ensure that a test that cannot be effectively verified cannot be conducted.

As a separate item, the TTBT Protocol requires that Anti-Intrusiveness (A-I) devices to be used in conjunction with the hydrodynamic yield measurement method be approved by both sides. The sides expect to achieve approval of specific devices shortly. As a hedge against intelligence gathering, the TTBT Protocol also requires Testing Party approval of equipment before the Verifying Party can apply it to a test.

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

Senator THURMOND. Secretary Barker, in your personal opinion does the current nuclear testing program meet the Department of Defense's needs or would you prefer to see a more aggressive testing program?

Dr. BARKER. Senator Thurmond, I must state that I agree with the concerns raised by the Directors of the Los Alamos and Lawrence Livermore National Laboratories in their letter to Secretary Watkins on June 6, 1990, which was reprinted in the June 26 Congressional record. In that letter, Dr. Hecker and Dr. Nuckolls stated that "At the current level of testing, we can no longer maintain both the level of nuclear competence and the forward-looking program that meets the Nation's needs in safety, security, effectiveness, stockpile reliability, and avoidance of technological surprise." These concerns, coupled with the clear Presidential statement of January 9 in which President Bush stated that "nuclear weapons will continue to play a critical role in U.S. national security strategy. So long as this is the case, the United States must be free to conduct nuclear tests to ensure the credibility of our forces." From my point of view, this Presidential requirement to ensure credibility, the national laboratory directors' concern over the current level of testing, and the reasons for the necessity of testing that I identified in my written state-

ment, all combine to call for an increased emphasis on assuring that our testing program meets U.S. national security needs.

Senator THURMOND. Admiral Fox, will the Threshold Test Ban Treaty have any impact on the modernization of our existing nuclear weapons stockpile?

Admiral FOX. The impact will be minimal. Our basic objective in negotiating the TTBT protocol was that its terms not affect our capability to meet the essential needs of the U.S. testing program.

CORRTEX TECHNOLOGY

Senator THURMOND. Is the CORRTEX technology at its optimum or can we improve on the technology? If we can improve the state of the art, will it require establishing new protocols?

Dr. ALESSI. As with all scientific measurements, refinements can be expected in the technology used in the hydrodynamic yield measurement method that will improve it. Such refinements will not alter substantive rights and will not require new protocols to the Threshold Test Ban Treaty.

SAFETY CONCERNS

Senator THURMOND. Could we verify the safety problems associated with the W79 artillery shell and the W88 Trident warhead without actual nuclear testing?

Dr. ALESSI. No. Nuclear tests of both the W79 and the W88 were required to obtain data to evaluate the safety of these weapons. Nuclear tests are often required, not only to determine whether or nor a safety problem exists but also to determine if the problem has been corrected.

[Whereupon, at 4:15 p.m., the hearing was adjourned.]

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